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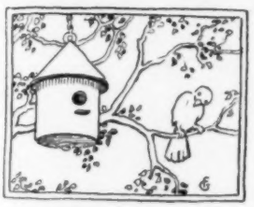

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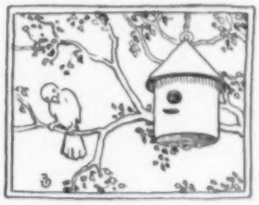

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"Writing maketh an exact man"—but sometimes it maketh him too exact! KATHERINE APPLEGATE KEELER tells what happens when "The Criminal Puts It in Writing." . . . DR. STUART PRITCHARD, medical director of the W. K. Kellogg Foundation, describes a project dedicated to the interests of the children of the world. . . . DR. CLAUDE LILLINGSTON portrays Jean-Martin Charcot, before whose time "neurology was like the world as described in the first chapter of Genesis: 'without form, and void.'"

DR. HENRY G. LANGWORTHY, a midwestern otolaryngologist, tells how nerve was substituted for nerves in a golf tournament. . . . The almost miraculous transformations that may be wrought by a sudden change of blood pressure are accounted for by DR. A. LEE BRISKMAN, a former contributor to HYGEIA. . . . DR. H. H. GLOSSER, an eastern ophthalmologist, explains the threefold function of the eyes.

E. F. KOHMAN of the research laboratory of the National Canners Association, Washington, D. C., simplifies the complex subject of vitamins. . . . DR. MILTON H. SHUTES adds further anecdotes to the story of "Lincoln and the Doctors" and, in telling of the double-vision incident, says: "We love him none the less for the old-time superstition of which he was a bit ashamed and against which he fought."

DR. H. G. BULL, an eastern pediatrician, offers timely suggestions on types and times of "Vacations for Children." . . . MISS E. M. GERAGHTY, food consultant, classifies and analyzes beverages. . . . HENRY M. STEGMAN presents an informal discussion of "The Nap as a Pick-Me-Up."

DR. MAURICE L. BLATT, who specializes in pediatrics, tells how the child of today may be molded into the man of tomorrow. . . . Downy, Susie and Pee Wee all make their bows to HYGEIA readers in NELLIE G. HERRIMAN'S story of Snickles and Snortles.

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SMALLPOX and VACCINATION

An Editorial

By

W. W. Bauer

VACCINATION against smallpox, as observed by Jenner and confirmed by his experimentation, is now 134 years old. One might reasonably expect after as many years as that, given an effective and easily applied preventive, that the disease would by this time have disappeared. As a matter of fact, smallpox has disappeared where vaccination has been adopted and adequately put into effect. Unfortunately, there remain areas where the population is largely unvaccinated. Indeed, in the greater part of the United States, vaccination is not as complete as it should be. This condition is due in large part to indifference of the public concerning smallpox. Before the time of vaccination, smallpox was a frightful scourge; it was characterized by so distinguished a lay writer as Lord Macaulay as worse than the black death because the black death came only at long intervals while smallpox was in the community all the time. Here are the words of the great English essayist:

"That disease, over which science has since achieved a succession of glorious and beneficial victories, was the most terrible of all the ministers of death. The havoc of the plague had been far more rapid; but plague has reached our shores only once or twice within living memory; and smallpox was always present, filling the churchyard with corpses, tormenting with constant fear all whom it had not yet stricken, leaving on those whose lives it spared the hideous traces of its powers, turning the babe into a changeling at which the mother shuddered, making the eyes and cheeks of the betrothed maiden objects of horror to the lover."

In Europe of the eighteenth century and before, no family considered its circle complete until all its members had had smallpox and recovered, because until they had acquired the immunity conferred by an attack, none could be regarded as safe. Smallpox in those days was a death-dealing scourge, not merely an inconvenience as it is today. It was so common that in the circulars advertising a reward for their capture, fugitives from justice were sometimes described by the statement that they were not pitted with smallpox. Today the fact that a man is not pitted is taken for granted and is no mark of identification. Young women were advised, in all seriousness, to get a husband before smallpox marred their beauty and reduced their chances for a favorable marriage.

Ben Johnson, 300 years ago, was responsible for the following lines written about smallpox:

"Envious and foul disease, could there not be
One beauty in an age, and free from thee?"

Vaccination changed all that. Crude at first, vaccination was nevertheless an inestimable boon. It stopped smallpox, and in the course of the years this disease, except at rare intervals, has become a mild and relatively harmless infection. Perhaps the loss in virulence of the smallpox infection, which now only rarely appears in its highly fatal forms, is not wholly an advantage. It leads people to become indifferent about prevention and gives opportunity for misguided sentimentalists to claim that vaccination is worse than smallpox, bolstering up their misstatements by examples of vaccination as it was a hundred years ago compared with smallpox as it is today, instead of using true parallels taken from the same eras.

That vaccination will prevent smallpox and does prevent it, there can be no doubt. As late as February, 1932, Dr. Samuel B. Woodward, appearing before the Public Health Committee of the Massachusetts Legislature, pointed out some statistics from a map of the United States published by opponents of vaccination. On this map, nine states are shown in black, having some form of compulsory vaccination; six

appear in stripes, vaccination being optional with the local authorities, and thirty-three states, in which no compulsory vaccination laws exist, are in white. On this map published by organizations opposed to vaccination, four states have been "awarded" gold stars because, according to these propagandists, they have exceeded all the rest in the race for freedom, for they prohibit compulsory vaccination! It would appear to physicians that these states have mistaken the direction in which the race is supposed to be progressing and are running toward the wrong goal. At any rate, Dr. Woodward points out that these four states, Arizona, Utah, North Dakota and Minnesota, with a combined population in 1920 of 3,817,555 persons, accumulated 46,130 cases of smallpox in their race for "freedom" in the ten years from 1919 to 1928. During the same years and with a population of 3,852,356—just a trifle larger than that of the four states mentioned—Massachusetts had but 408 cases. In other words, where compulsory vaccination was prohibited, there was just 113 times as much smallpox as where compulsory vaccination existed! Utah alone had 272 times as many cases of smallpox as Massachusetts, and the four starred states had more than twice as many cases as all the nine black states which had some form of compulsory vaccination.

Then there is a group of six states where there is a sort of local option about smallpox and vaccination. These states are North Carolina, Georgia, Oregon, New Jersey, Ohio and Connecticut, with a population, roughly, of 16½ millions, and practically 92,000 cases of smallpox, while the remaining states, with no compulsory law and a population of 57½ millions, had 401,000 cases of smallpox in the same ten years.

Such figures as these should be a satisfactory answer to those who declare that the improvement in smallpox has been due to sanitation and not to vaccination. As a matter of fact, if sanitation were an adequate protection, such states as Arizona, Utah, North Dakota and Minnesota with large areas, relatively small populations and great distances between population centers are in a most favorable situation to avoid smallpox as compared with densely populated states like Massachusetts, and yet they far exceed these states in the proportionate occurrence of smallpox within their borders. One might go on indefinitely quoting figures of this kind in favor of vaccination, but these are typical of the rest and should suffice.

One of the great objections that is raised against vaccination is that once in a while there are bad results. This cannot be denied and, indeed, there is no necessity for denying it. Acknowledging every authenticated case of harm done by vaccination, thousands of persons saved from smallpox may be offered as compensation. A comparison of smallpox deaths today with smallpox deaths prior to the knowledge of vaccination should be enough to convince any intelligent and unprejudiced person that he is taking an infinitesimal chance of harm when he becomes vaccinated, as against a strong probability of trouble if he fails to be vaccinated.

In the eighteenth century, 60 million people died of smallpox in Europe alone, which makes 600,000 persons a year on the average, while in eighteenth century Boston, with 18,000 inhabitants, of whom 10,000 had already had smallpox, the occurrence of the disease in epidemic form in 1792 accounted for 8,000 cases, exactly the remaining number of the population who had not previously had it.

The mildness which now characterizes smallpox is not to be depended on, as shown by epidemics within the last decade in a number of important American cities, where black smallpox broke out, caused large numbers of cases with a high percentage of deaths and was controlled only by wholesale vaccination. Each of these epidemics was controlled promptly and effectively by vaccination alone. If vaccination is neglected, smallpox sooner or later will be introduced into the community and, finding a nonimmune population, will rage until it is stopped by vaccination. It will leave in its trail scarred and disfigured human beings, to say nothing of the deaths and suffering which it will cause.

It is true that in only nine states out of forty-eight are people compelled to be vaccinated, while in six additional states there may be local regulations requiring vaccination. There are even certain states where compulsory vaccination is prohibited, but there is as yet no state in which the exercise of good judgment with respect to vaccination has been made unlawful, although some years ago one state did seriously consider and almost pass a law requiring vaccinated persons to be quarantined for two weeks. Fortunately there were enough legislators who retained their sense of values to save the state from such asinine legislation.

According to our present laws, vaccination in most localities is a matter of individual choice. It has been well said that a vaccination scar is a badge of good citizenship. It is more than that. It is a mark of good judgment.

Bladder Trouble and So-Called Bladder Trouble

By Channing S. Swan

DISTURBANCES of the bladder include too frequent emptying by day or night, pain or burning accompanying the act, difficulty in emptying the bladder, inability to empty it, involuntary leakage, or a combination of two or more of these conditions. Accompanying any of these disturbances may be a change in the normal physical appearance of the urine, such as a cloudiness or a bloody condition. All these changes are noticeable to the layman.

Fortunately the presence of these symptoms and signs does not always indicate a serious disease condition any more than the natural free passage of a clear urine always means freedom from disease. However, when these warnings are first noticed a physician should be consulted; he will suggest a specialist if the condition warrants it. After the age of 40 is reached, analysis of the urine twice a year will prove an added safeguard to the early recognition of what might become a serious condition.

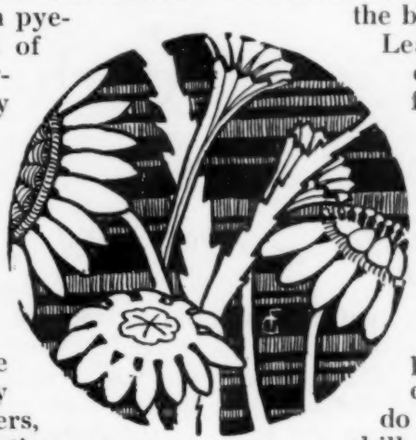
For most persons ingesting an average quantity of fluids, normal frequency of emptying the bladder is from three to four or possibly five times in the daytime, with no emptying at night after retiring. The causes of increased frequency of this act vary from minor causes, such as mere nervousness, exposure to cold, or the drinking of large quantities of fluids—particularly tea, coffee or beer—to the more serious medical or surgical conditions that may prove fatal if neglected. The cause of the frequency may not be in the kidney or the bladder. Diseases of the nervous or glandular systems, diabetes, tears from childbirth, pressure of displaced organs, or tumors on the bladder are some of the extrinsic causes. Surely the layman cannot tell what is wrong without an examination, for sometimes even the specialist has difficulty in making an accurate diagnosis without recourse to delicate and intricate examinations. It is reassuring, however, to know that medical science has advanced to such a degree that it is now possible to make a correct diagnosis of bladder and kidney disorders in more than 90 per cent of the cases.

Usually more serious than day frequency is the necessity to urinate at night. Unless one has drunk a large quantity of fluid in the evening or before retiring, it is unnatural to have to empty the bladder before arising in the morning. However, pregnancy is an exception to this. Aside from inflammation of the bladder, in which condition the causes are many, the most common causes of nocturnal micturition are nephritis (so-called Bright's disease), diabetes and enlargement of the prostate gland. Occasionally, emptying of the bladder may be a matter of habit, but one should be sure that all other causes have been ruled out.

Pain or burning accompanying the act of emptying the bladder is usually associated with inflammation, though it may be simply due to an "acid condition" dependent on dietary indiscretion. The inflammation causing the discomfort may be located either in the urinary passage or in the bladder. However, this inflammatory discomfort should not be labeled cystitis and dismissed as such. Cystitis, or inflammation of the bladder, is almost never primary; it is practically always a secondary manifestation of some disease of the kidney or bladder, or the result of childbirth tears; or it may come from an outlying focus of infection in another part of the body, such as the teeth or tonsils. In many cases the inciting cause is found in the kidneys, the urinary passage or the prostate. Treatment directed to the diseased condition in one of these parts may lead to the disappearance of the symptoms of cystitis, whereas treatment directed solely at the bladder may not relieve, as it does not reach the primary cause of the disturbance. One should not be satisfied with a diagnosis of cystitis unless the cause is clarified.

Since inflammation implies the presence of pus, I shall briefly mention some of the disease conditions that cause pus to appear in the urine. In the kidney the commonest infection is pyelitis. However, its cause is sometimes hard to find, and the treatment is frequently prolonged. Pyelitis needs expert attention if it is not of temporary duration. This is especially true in children, in whom pyelitis frequently occurs. In women this is often associated with pregnancy. The persistent cases should have thorough investigation, as some have underlying causes which may require surgical intervention.

Infections more extensive than pyelitis may cause the destruction of the kidney. For example, tuberculosis and stone in the kidney are not uncommon and may not cause any symptoms other than slight increase in the intervals of emptying the bladder and a cloudy or bloody urine.



In the ureter, the tube leading from the kidneys to the bladder, the commonest lesions are stones and strictures. In the bladder itself, inflammation may be caused by stones, tumors, ulcers, enlarged prostate gland, outpocketings or diverticula, and displacement due to childbirth tears. Infections of the prostate gland in men are a common cause of cloudiness of the urine.

In the water passage, or urethra, the commonest cause of inflammation and pus is one of the common social diseases, though of course other causes do exist. In women this disease often either does not cause any urinary symptoms or noticeable pus discharge, or leads only to such temporary discomfort that it is not taken seriously, with the result that one frequently sees women who deny that there is anything wrong with them, although proper examination easily reveals that they have this disease.

Now with so many possibilities for the cause of pain or burning with the passage of the water, it is easy to see why a person cannot make a differential diagnosis on himself. The thing to do is to consult a physician.

Difficulty in emptying the bladder may come from simple overdistention caused by not having the opportunity to empty it when one first feels the need. However, repeated difficulty may be due in men to enlargement of the prostate gland or to the presence of a stone or a stricture in the urethra. Blood clots also cause stoppage at times. In women, tumors of the pelvic organs, a sagging bladder from childbirth tears, or pregnancy may cause difficulty in starting the urine. In both sexes disease of or injuries to the nervous system affecting the bladder nerves may interfere with emptying of the bladder and even cause stoppage.

Actual stoppage of the urine can be caused by swelling due to inflammation at the bladder outlet or to any of the various conditions already mentioned as causing difficulty in starting the stream of urine.

Involuntary leakage of the urine, which is called incontinence, may be due to congenital deformities, to diseases of or injuries to the nervous system, to enlargement of the prostate gland in men, to relaxation of the bladder muscles, particularly of the "control muscle," resulting from childbirth tears in women, or to local irritation due to inflammation at the neck of the bladder or in the urinary passage.

Leakage is also due to the formation of false passages, called fistulas, from the bladder or the upper urinary tract. These false passages may be caused by obstruction to the normal flow of urine, plus inflammation, or to serious childbirth injuries, or they may result from operations on the prostate gland, the bladder, kidneys, urinary passages or female internal organs. Such operative injuries do not necessarily indicate a lack of skill and care in the surgical measures taken. Difficult cases in the most skilled hands sometimes lead to the formation of fistulas.

Undoubtedly, the commonest example of incontinence of urine is enuresis or bed-wetting by children. In the average case there is nothing wrong with the control mechanism during the daytime. At night the child empties the bladder often in his sleep without awakening, probably because the bladder capacity is small, or because the balance between the different nerves controlling the opening and shutting of the bladder outlet has not become properly established. This often leads to the formation of a bed-wetting habit. Proper training persisted in should break this habit. By the third year the child should be able to control the urine in the daytime, but many continue to wet the bed at night until the sixth or seventh year or even to the age of puberty. After a reasonable period of training has failed to cure the habit, the child should be examined for another cause for the bed-wetting. The cause may be an acid condition of the urine or a local irritation that can be taken care of by simple cleanliness or perhaps by circumcision, or it may be one of many other various conditions, including congenital deformities.

Finally, I wish to speak of blood in the urine. Although there are instances in which a patient has noticed this condition and refused examination and never gotten into later difficulty, the presence of blood usually means that some more or less serious medical or surgical disease of the bladder or kidneys is present, and a thor-

ough investigation should be made at once to determine the source of the blood. Women sometimes cannot be sure whether an abnormal flow of blood has come from the pelvic organs or has originated in the bladder, but in either instance examination is warranted. One of the signs of cancer of the urinary tract is blood in the urine. Statistics show that from 30 to 45 per cent of persons passing blood in the urine have a tumor, and often it is a cancerous tumor in either the kidney or the bladder. The other common causes of blood in the urine are tuberculosis, stone, pyelitis and Bright's disease. There are also many other causes, some of them not even originating in the kidney or the bladder; but the point I wish to drive home is that blood in the urine so often means cancer that once the warning is seen, no one can afford to neglect it a minute, but should consult his physician at once.

Selecting a Tooth-Brush

By

George H. Wandel

THE story of tooth-brush manufacturing is interesting, especially the gathering, buying and selling of the bristle material. The bristles used in tooth-brushes are obtained from hogs. They are not taken from the common hog but from a peculiar type of animal found in Russia, China, India, Roumania and Poland, the best bristles being obtained in Russia and China.

The commonest brushes used have either bone or celluloid handles, although some are made with bamboo handles. Bone handled tooth-brushes are made by hand, and the bristles are held in place by drawn wire or linen thread. Linen drawn brushes may be recognized by the plugs that are seen at the end of the brush head. Wire drawn brushes have strips on their back, which are filled in with various colored waxes. The wire drawn brush is considered the best. Celluloid handled brushes are practically all machine made, and the bristles are set in by a special machine with pins and staples; they are spoken of as pin drawn or staple-tied tooth-brushes. There are a few celluloid brushes that are hand drawn, and these brushes may be identified by the plugged ends.

Of course, the bristles when first obtained are anything but clean. They are put through washing and grading processes. Bristles may finally be classed into bleached and unbleached varieties. The Japanese control the bleaching process entirely, and their bleaching method, a chemical process, is known only to them. This chemical treatment also sterilizes the bristles, which do not receive any further sterilization until they are made into the tooth-brush.

About thirty years ago the French had a bleaching and sterilization process in which the bristles were exposed to sunlight for a period of six months. During that time the bristles were frequently turned to make certain that the sun reached all bristles and all parts of them. This method has been largely replaced by the Japanese chemical method. Unbleached bristles, aside from thorough washing, do not receive any sterilization until the time they are made into the brush, at which time the heat used in the construction of the brush is supposed to sterilize them. No matter what make of brush is used, it is advisable to place it in a disinfectant solution for from fifteen to twenty minutes and rinse it off thoroughly with hot running water prior to the first time it is used.

There is really no one brush that can be recommended above another. Brushes vary in size and shape and in the stiffness of their bristles. One of the commonest mistakes is to choose a brush that is too large. Another mistake is to use a brush that does not have enough stiffness in its bristles. In selecting a brush, it is well to buy one that is well made. Brushes that readily shed their bristles and the bristles of which do not tend to retain a reasonable amount of stiffness are not desirable. Generally speaking, a medium size brush with fairly stiff bristles, with the bristles tufted, and with spaces between the bristles equal at least to the thickness of the tuft is desirable for the adult. In the case of the child, the same principles hold true except that the brush should be smaller. Choose a brush the size of which is best suited to the size of mouth in which it is to be used. To get the most good out of tooth-brushes it is best to have at least two of them. By alternating from one to the other the one not in use has an opportunity to dry out and regain much of its original stiffness. When bristles begin to pull out, break off or become matted, it is best to purchase a new brush.

A Youth-Conducted Health Conference

"A" lunches were displayed on posters and placards.

By

Bernice Elliott

THE CHILD may be a little savage, detesting spinach, early bedtime and maternal washings behind the ears, but if one can succeed in capturing his eager interest and putting it to work in the right direction, he can be made as strong a champion of good health habits as could be desired by the most ardent child health enthusiast. The important thing is to elicit this interest.

As an experiment, last winter the department of rural education, Michigan State Normal College, with the cooperation of the department of health education, sponsored an all-day Civic Health conference on the college campus. Officers of the Civic Health clubs from the fifteen rural schools of the district, under the supervision of the college, were invited to attend as delegates. There were fifty of these youthful representatives, ranging in age from 7 to 14 years. Thirty of the fathers and mothers, who were included in the invitation, attended as well. They did not interfere in any manner, however, with the juvenile aspect of the occasion. They did not sit with their children, and they occupied, as far as the children were concerned, a modest place in the background.

The emphasis placed on the conference by the local newspaper which had featured it on the weekly school page had had its psychologic effect. The children came to the conference impressed by the importance of this adult contribution which they were called on to make. From the smallest youngster, proudly bearing his badge of paper carrot or tomato, to the oldest, armed with businesslike note book and pencil, the children seemed imbued with a sense of being full-fledged delegates to a full-fledged convention. And this feeling was sustained. Throughout the entire conference the child's love of imitating adults was brought into play for the furthering of his interest in health.

The conference was held in a large room, formerly the college library. Posters and other health exhibits made by the schools or in the college classes were ranged about the sides of the room. Among these were a model schoolroom, village and playground; a demonstration chart of one child's health record following the correction of defects, improved diet and more hours of sleep; and colored cardboard models of "A" lunches including fruit or vegetable (not potato), bread and butter or other energy food, one hot food (at least in cold weather), milk or two foods prepared with milk, and dessert if desired. A placard read: "'A' lunches and other 'A' meals (1) help to reduce colds and dental decay and (2) help to improve general efficiency and disposition."

Parents and children wandered about freely, examining and commenting on the exhibits. One mother was heard to remark regarding the orange crate furniture: "Say, that would be a good idea for a wash bench." The comment was significant. It epitomized the eager interest shown by parent and child alike. Their minds were open. They felt honored that the college had opened its doors to them. They were receptive of new ideas.

To open the program, informal welcomes were given by the county supervisor, the head of the rural education department and a member of the department of health education under whose direction the health demonstrations had been prepared. An animal feeding experiment was explained to the conference group by a rural education student. Four rats, one pair of which had been fed for two weeks on "A" lunches and the other pair on lunches consisting of potato, crackers with margarine and milk, were weighed and compared. The children were allowed to assist with the weighing and recording.

After this initial demonstration, the fifty children were divided into groups of ten for section

meetings in which different health projects were demonstrated and explained by college students. The children were allowed to enter freely into the discussions. The older children took notes, since it was understood that each representative was to return to his school and present a report of all that he had learned at the conference.

All the health demonstrations were given with the idea that everything presented could be made or done by children in the rural schools.

The children were shown how to make a thermometer stand for recording the temperature of the schoolroom and were given instruction in its use. The stand required only simple materials—a weighted chalk box with a broomstick standard and hook for the thermometer and record. The stand is movable and is especially effective in that the children can be given full responsibility for its use. Older children may take care of cooling the room or helping with the fire if necessary.

A correct posture project included measuring the child's height.

In another group, a correct posture project included measuring the child's height and the height of seats and desks. The children were aided in selecting seats that were not more than two sevenths of their height and desks three sevenths plus 1 inch. The children did the measuring. Besides well fitting furniture, the need of well fed and well rested bodies was emphasized, and an attempt was made to give the children a real desire for a fine appearance.

In another demonstration, ten standard candles were lighted to illustrate the minimum amount of light that a child should have for studying. A light meter was then employed to show that the children farthest from the windows seldom have sufficient light. The light from a window was measured with various types of shades. Ordinary green window shades and shades made of thin, unbleached muslin were compared, and the disadvantage of the green shades was shown. The children came to the conclusion that all shades should be completely rolled except when the sun glares on the work tables or on the desks.

The children were taught how to make from an orange crate a satisfactory cupboard for storing drinking cups. Aluminum cups are considered by the department to be even better than the expensive paper cups since the child learns to care for his own property.

The first aid demonstration was held in the afternoon. The cabinet used was one that could be made and equipped in the rural school. The more common injuries were discussed and their care was demonstrated.

The lesson in making orange crate furniture was given in the afternoon at a time when the interest of the children might be expected to lag. This furniture, of the right size for children and attractively painted, is used to dramatize health practices in home making—ventilation, care of clothing, correct posture, lighting and hours of sleep. The proper way to spend the evening with quiet games and books may be demonstrated in connection with the living-room unit, which may also be utilized as library; cleanliness of the skin, hair, nails and teeth may be taught with the bathroom unit which contains a wash stand that the child can really use. In connection with the kitchen and dinette unit, dish washing and the preparation of foods may be correlated with other subjects, such as dramatization and lessons on table manners.

At the noon hour, handwashing equipment suitable for the rural school was set up. This equipment consisted of a collapsible bench, large bowls and pitchers, and an oil can for home-made liquid soap.

An oil can contained home-made liquid soap.

The home economics department of the college had cooperated by preparing a simple but well balanced luncheon. Vegetables brought by the children were utilized so that the pupils felt that they had had a part in the preparation of the meal.

Each school had a representative who introduced delegates, both children and adults, from his school. One child from each school made some contribution to the after-dinner remarks. Even the youngest children made

their contributions in health stories, jokes or rhymes. The county commissioner and school nurse spoke briefly. The president of the college, the director of rural education and the rural supervisor also addressed the delegates. The heads of the education, the health education, the special education and the home economics departments were present.

Directly after lunch the children were given a trip to the campus animal house, a detail which especially impressed the younger delegates. When they returned, the luncheon was cleared away, and the children were fresh for the two remaining demonstrations.

While these were going on, the head of the department of health education held an hour's round table discussion with the mothers. A discussion was carried on relative to the child's bedtime hour and his interest in eating the proper food. The mothers brought up their own problems and others gave suggestions.

The college physician said: "Parents do the teaching after all. You are doing the big part in health education. We are only introducing it. If you do not carry out what we suggest to the children, we fail. We only ask that you make the child feel his own responsibility."

Of course the important question is how far the health teaching of the conference carried over into the every-day life of the child. From reports sent in by the rural teachers, one may assume that the carry-over was by no means negligible.

In one school the mothers were present at the Civic Health meeting at which the conference reports were given. They remarked on the seriousness with which health questions were discussed by the children. Parents and teachers spoke of the fact that the younger delegates especially had derived benefit from the contact with children from the other schools.

The teachers are agreed that their own health teaching has been greatly stimulated by the conference. Their pupils seem to have acquired a greater consciousness of food values. Some of the children call attention to the fact that they had a certain fruit or vegetable for lunch, and especially is this true of those who have not had it before. They also like to report that they had hot cereal for breakfast or that they had so many hours' sleep the night before. A new interest in proper ventilation and lighting is being displayed. More attention is given to the placing of window boards and the adjustment of window shades. A number of the schools have already made thermometer stands.

Reports come from the homes that the children are critical of their food. One mother said that her child who is in the fourth grade sat down to dinner and evaluated. After a moment he said: "Mother, we have a Class 'A' dinner." In one family the children have insisted on having cocoa or milk to drink instead of coffee as formerly.

The same encouraging reports come regarding the parental attitude. In one school, the Parent-Teacher Association is offering a prize to each child who gets ten hours of sleep each night for a given length of time.

One mother, who as a result of her attendance at the conference is giving her child an "A" lunch, told the teacher that she believed the child's underweight was due in part to improper diet. He is now gaining.

One poor child who cannot afford to bring milk with his lunch is now supplied with it by another family.

It is not to be expected that a single conference of this sort can accomplish miracles. However, it is possible that the meeting may have started the indicator pointing in the right direction and may have justified the effort expended.

How Science Solves Crime

V. *The Criminal Puts It in Writing*

By KATHERINE APPLEGATE KEELER

SO RICHLY associated with human activity has been the art of writing that the study of "questioned documents" leads to one of the most fascinating of the various fields of identification. Every word we read has been written by some human hand. An ancient classic suggests the images of a multitude of diligent hands—strong ones, deftly hammering; slim esthetic fingers, laboriously drawing; those of the transcriber, the translator and on to the unmistakable flying hands of the modern typist and typesetter. And, significantly enough, not one of these writers has duplicated the work of any other.

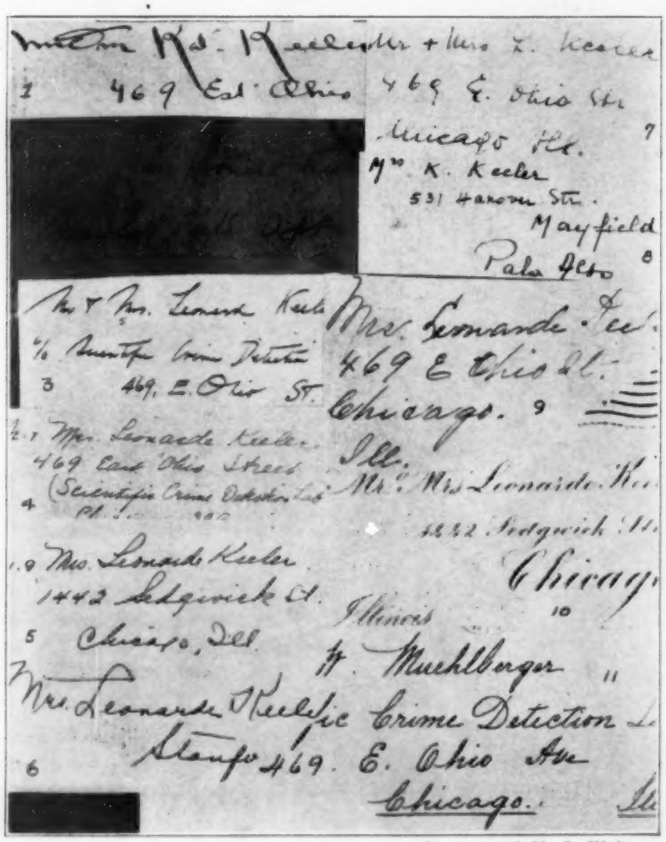
Changes in the fashions and materials of writing, and the fact that no two persons write exactly alike, usually gain but the passing attention accorded convenience, or stir only the curiosity that attaches to "character reading" possibilities. However, thanks to the perennial nature of human foibles, documentary features frequently become the subject of the most burning interest. A man may announce the finding of an original shakespearian manuscript or of a new will by which he inherits money already being divided by certain heirs; he may deny the genuineness of a signature appearing in his name on a note, or he may cry out that his wife has received a threatening letter. In short, love, fame, honor or money may be involved in the variety of problems or controversies that arise regarding the date or identity of writings.

Contemporary problems in document examination are concerned with the product of two types of writing—hand and machine. Generally speaking, the same principles of identification are applicable in the two types.

If handwriting is anonymous, it may be identified as the work of a foreigner or of an American, or it may indicate that its author was of a certain age or sex and had a certain occupation, education or special training. Occasionally other characterizations may be added. And finally, if handwriting from a certain suspect is obtained, it can be told whether or not that particular person was the author of the anonymous writing.

Parallelly, the machine used in the typing of a letter can be identified first as to make, then as to model (fixing its approximate date of manufacture) and finally, when writing is taken from a "suspected" machine, it can be told definitely whether or not that machine produced the anonymous letter. This applies to all machine writing.

The possibilities in identification of nationality in handwriting are readily suggested to the casual observer by the "national" characteristics present in the handwriting of the American who has been educated in Germany.

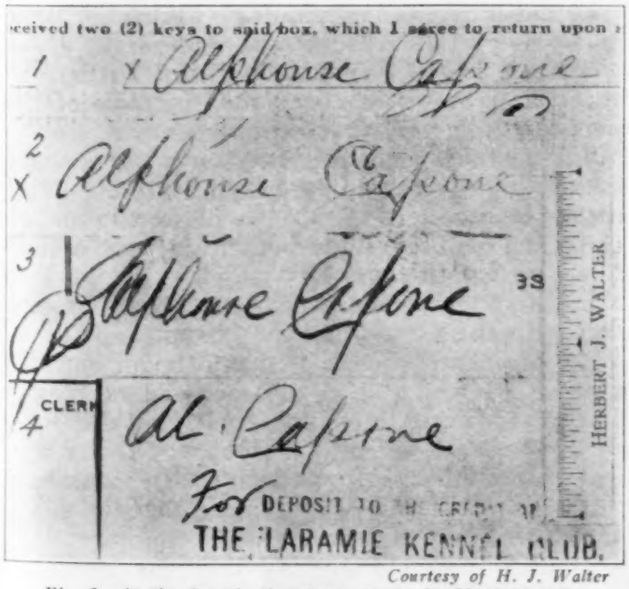


Courtesy of H. J. Walter

Fig. 1.—The mark of early training commingles with that of the individual; 1. French; 2. Dutch (engineer); 3. English (engineer); 4. American (Palmer); 5. American (Palmer); 6. American (Spencerian); 7. Austrian; 8. Austrian (librarian); 9. American (round hand); 10. English (round hand); 11. English (round hand). Note how specimen 11 follows regular copy style of the orthodox pattern, shown in specimen 10 (executed by Mr. Walter). Specimen 9 is unusual in that most Americans now living use a later style. In this case, however, the writer was taught by a generation that learned from the round hand writers who pioneered the West, where new systems were introduced slowly. Compare the figure "4" as it appears in this group with those in foreign writings that were influenced by round hand styles, and contrast it with the modern American "4's." Note the modified round hand forms of "e" in 7 and 8.

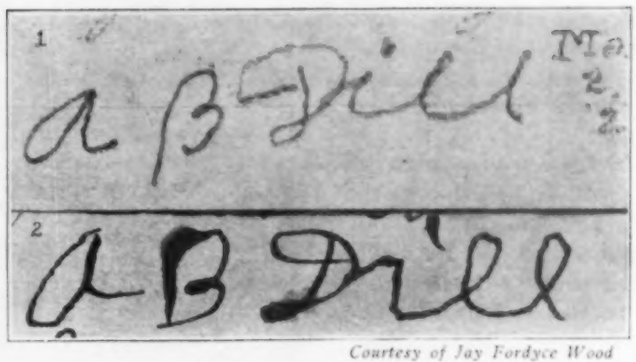
The angularity of this foreign-bred writing is as striking as the decorations or extravagances of the French writing. These general characteristics may be obscured in some instances by American training but, in most cases, certain patterns and details of formation will persist, and the student of handwriting learns by analysis to identify these as the unconscious mark of foreign training. Osborn, the most famous of "questioned document" examiners, refers to these characteristics as "accent" in writing because they are as tenacious and lasting as accent in speech and as difficult to imitate by the American as they are to eliminate by the European.

In this country the great increase in the general use of writing and in the demand for speed has produced a rapid, simple pattern and style as radically different from its "round hand" English forebear as is modern American speech from native English. Since the days of the various shaded round hands used in this country in the latter part of the eighteenth century and the early part of the nineteenth, there have been an astonishing number and variety of different systems patterned out by copy masters. Osborn classifies these according to three main periods. The first covers approximately twenty-five years after 1840, during which time modifications of the round hand and early spencerian, Payson, Dunton and Scribner writings were taught. The second period, from 1860 to 1890, was defined by "systematizing," when a general cleaning up of the latter copy styles took place. In the final spencerian system and in similar copy systems developed during this period, were embodied the general characteristics of the modern commercial writing as exemplified by the zanerian,



Courtesy of H. J. Walter

Fig. 2.—Is the fourth signature genuine? Signatures 1, 2 and 3 were known to be genuine. 1 and 2 were written in ink, and 3 was written in pencil. The disputed signature (4) was also written in pencil. (Less friction is encountered by a pencil than by a pen. Note the apparent rapidity of execution in 3 as contrasted with 1 and 2).



Courtesy of Jay Fordyce Wood

Fig. 3.—The effect of age contrasted with the effect of fraud: (1) An old man's signature, known to be genuine. Note the general weakness of line, consistent throughout the signature, but the absence of any sign of hesitation. (2) A signature which appeared on a will and was proved in court to be a forgery. Aside from discrepancies in form, note the astonishing number of abrupt changes in movement, the ink gathers, and the spots of firmness (some of the B and and D strokes) which the aged Mr. Dill was incapable of executing; mingled with these are obvious signs of hesitancy.

Palmer and other contemporary systems. There are, of course, a number of differences between the various systems of these two eras in the formation of a number of capitals and some small letters; and the more modern writing, out of greater consideration for speed, is somewhat smaller and more widely spaced. With regard to the general proportion and arm movement involved in the executions of the early systems, such as the spencerian, and their later development, however, there is no special difference.

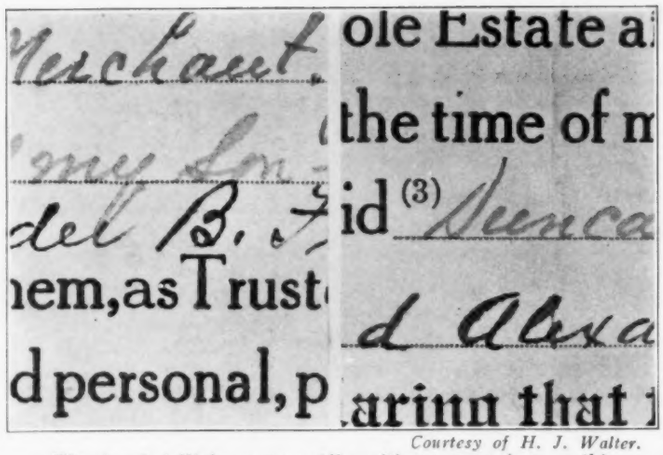
The third period described by Osborn covered approximately the decade between 1890 and 1900, when the "vertical" system became suddenly popular. Spencerian copy-books indicated both a vertical and a backhand form of their system, but the "vertical" system referred to is an entirely separate, radically different copy, patterned by an Englishman, Thomas Jackson, and embodying some of the round hand forms as well as the pen lifts after many letters.

The persistence of early training in handwriting is unfortunately demonstrated by the writers who were first exposed to Jackson's vertical system but, before they had completed grammar school, had been retrained according to zanerian, Palmer or similar slanted, arm movement systems. The resulting conflict has produced many distinctly poor writers. In the East this particular type of confused writing is usually executed by persons approximately 35 years old; in the West, where the influence of new handwriting systems has been belatedly felt, the age may be five or even ten years younger.

Besides the aforementioned foreign and domestic influences on handwritings, a wide variety of other environmental modifications leave their mark. The fashionable feminine styles, the little peculiarities of lettering that creep into the script of engineers, the abbreviations and signs dear to such professions as the medical and pharmaceutic, librarians' script,

occasional shorthand marks, and the unique word spacing and liaison of the telegrapher are all grist in the identification mill.

Much importance is attached to these group clues for two reasons: (1) they are useful in the identification of the author of anonymous writing and, in general, act as protection against imitation or prevention of disguise; (2) they must be known and understood in order not to be confused with individual characteristics. With reference to individual characteristics, it may be remarked that many persons who have infrequent occasion to compare two writings are prone to err in differentiating individual characteristics from environmental modifications. Referring to two such writings as specimens 4 and 5 of figure 1, the remark might commonly be made, "I am quite sure that they are by the same writer. Look at those *M's*—they begin the same way. And the capital *L's* and *K's* are the same pattern too."



Courtesy of H. J. Walter.

Fig. 4.—A telltale crease: All writings appearing on this will, which involved a huge fortune, were alleged to have been written at the same time. However, ink written across a crease runs into the disturbed fibers of the paper, whereas ink already dried is not affected by creasing. (Note the runs from "B" and "le" contrasted with the condition of "a", "S" and "n").

Bearing in mind the fact that thousands of persons have learned to write from one system, at first it may be somewhat surprising to learn that each individual inserts peculiarities and variations that make his writing different from that of any other person. But it must be remembered that in addition to numbers, punctuation marks and miscellaneous signs there are fifty-two characters to be made; each one of these may have from two to seven or eight strokes, and each stroke may vary as to length or height, slant, closeness to the preceding and the following strokes, manner of joining, beginning and terminating letters, spacing, direction, thickness and shading. Considering these possibilities, it would indeed be remarkable if two handwritings duplicated each other in their combination of variations.

In specimens 4 and 5 already referred to, note the different heights of the humps in the *M's*, the dissimilarities in the joining of letters, the distinctly different *r's* and the angular flat dish loop in the lower left corner of one *L*. It would be difficult to enumerate all the individual divergences in these two writings that were, nevertheless, learned from the same system, the Palmer method.

How can one tell whether a signature is forged or whether it is genuine? What allowance can be made for individual variation due to changing moods or writing conditions? Figure 2 shows three signatures known to be genuine and a fourth which is questioned. Briefly, Herbert J. Walter's opinion that the fourth signature was genuine was based on two reasons: 1. It contained a number of identifying characteristics that appear in all three genuine signatures, and its variations from these were apparently well within the limits of variation indicated by the three genuine signatures. 2. It was executed freely and unhesitatingly.

The force of these reasons is accentuated by the appearance of the questioned signature depicted in figure 3 which, by the testimony of Jay Fordyce Wood, was proved to be a forgery. In this case the discrepancies in form from constant characteristics in a number of genuine signatures were easily discoverable. Significant, indeed, in this instance is the fact that the line quality itself marks the work as that of a forger almost without comparison with the genuine signature.

Genuine line quality is even more difficult to imitate than form. Or, one might rather say, if the forger manages to reproduce all the little details, twists and peculiarities which are the result of a complicated coordination that has become unconscious and habitual through the long practice of the "genuine" writer, he must go so slowly and carefully that the lines of his work are drawn instead of written. They will show, as a result of conscious guidance of the pen, changing movement impulses or ink gathering where the pen has slowed at a particularly difficult point; attempts to duplicate the delicate rapid changes in weight will result in an awkward wobbly line; beginning and ending lines, instead of tapering—which is the work of a pen moving as it lifts or as it comes in contact with the paper—will be abrupt and stubby as a result of meticulous care to begin and end at a point which the forger considers exactly correct. These line faults will appear in a tracery as well as in a free copy. No one who has examined the lines of such a forgery under a microscope can but be convinced that the clean, rapid line in the questioned signature, "Al. Capone," was genuine and that the irregular, botched line in the questioned Dill signature was the work of a forger.

The best forgeries I have seen have been the work of a portrait painter whose skilful repro-

ductions of form are made as nearly as possible at the same speed and with the same pressure as that of the writer whose signature he is imitating. Fortunately, most forgers are not artists, and their work is hampered further by the necessity of making good a certain signature on a certain piece of paper on the first attempt. One slip—and the forger's work is ruined. Because of the strain of this knowledge, his artistry suffers much.

As the problems of identification of machine writing are not complicated by attempted disguise or imitation, this particular science rests largely on precision and the logical use of a great mass of detailed data.

Since the seventies, when the first typewriter was put on the market for commercial sale, some thirty odd makes of machines have been used in this country. In one respect or another, the type face on each of these makes of machines has been different from all the others, because none of the designers of type exactly agreed in matters of taste in type design. Some liked fat letters, some tall and thin; some liked long serifs, some short, and so on. Consequently, the work of each make can be readily distinguished from the work of others.

At various periods in the improvement and development of typewriters, certain changes were made in the type design of each make. The date of manufacture of a particular model of a particular make can, therefore, be identified by its work; a 1926 Underwood, for instance, cannot be used to write a document dated 1925 without recording a mark of fraudulence. An anachronism of ten years may be revealed by the length of a *t* crossing or by the humps of an *m*.

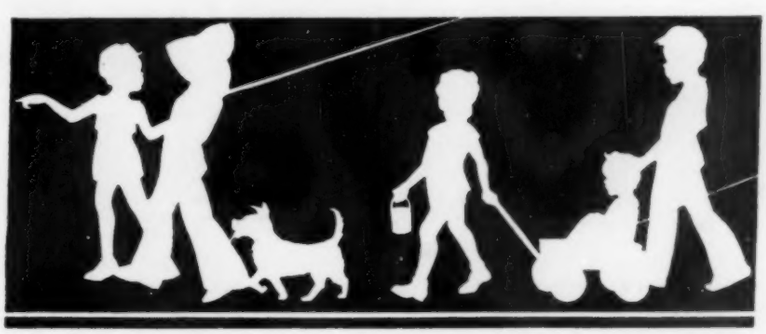
"Chiefly the mould of a man's fortune is in his own hands," wrote Lord Bacon many years ago. But that was long before Alphonse Poller perfected the process known as "moulage," and placed the "mould of a man's fortune"—or misfortune—indisputably in the hands of the police.

In an article entitled "Moulage in Criminal Investigation," which will appear in the July number of HYGEIA, *L. J. Kaempfer describes Dr. Poller's contribution to police science. "Moulage," he writes, "is yet so new and embodies so many possibilities that the next few years are bound to witness tremendous advances in this field which is, as yet, relatively unexploited."*

The possibility of two machines of the same make and model producing identical work is almost as small as the possibility of identity in two handwritings. Here again are the fifty-two letters of the alphabet, in addition to punctuation marks, numerals and miscellaneous signs, each of which is subject to variation in a number of different ways. Each character may be too high or too low, or set too far to right or left; it may tilt in two directions and may type unevenly in eight different ways: heavy in any of the four corners or any of the four sides, and light at the opposite points. In addition to these position defects, which may, of course, vary in degree, there is practically no end to the defects that may appear in each type face, such as broken serifs and defective or worn lines.

Another interesting parallel may be drawn between handwriting and typewriting. It is well known that, in spite of persistent individuality, a person's handwriting gradually changes from year to year; it may therefore be grouped and identified according to various periods. Cases are on record in which typewritten work has been identified as being that of a machine during a certain year. And this study of progressive deterioration of type has revealed fraudulent dating of numerous documents.

It should by no means be thought that handwriting and typewriting are the only features for examination in a questioned document case. Ink, paper, erasures, folds, perforations, glue and typewriter ribbon all play their part in revealing the bungling slips and anachronisms committed by the meddler and fixer of documents.



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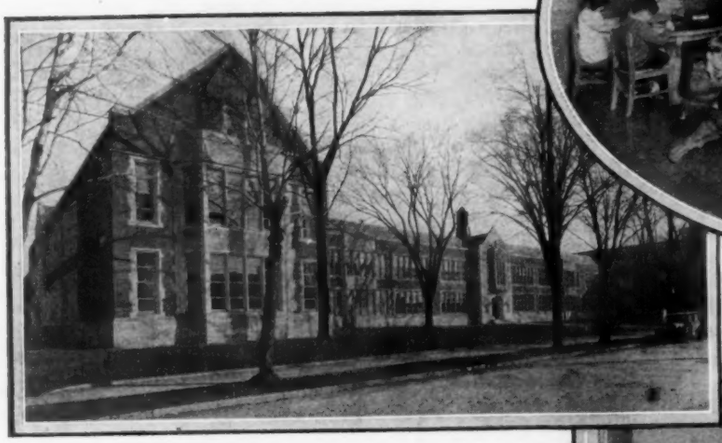
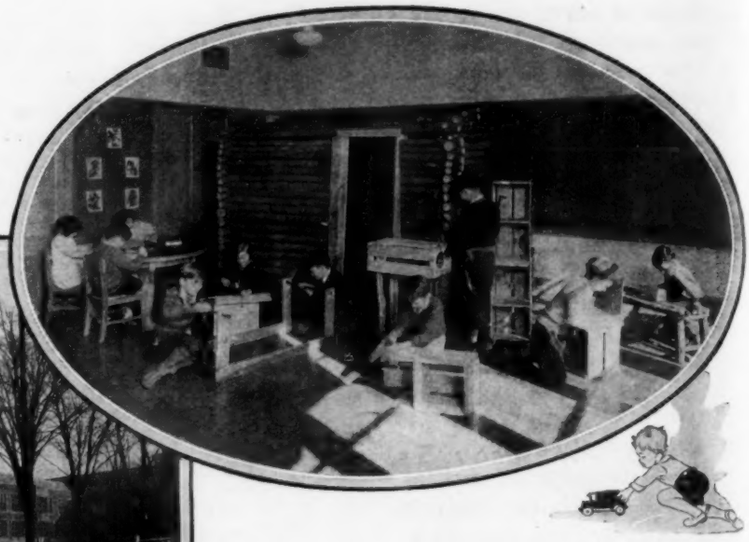
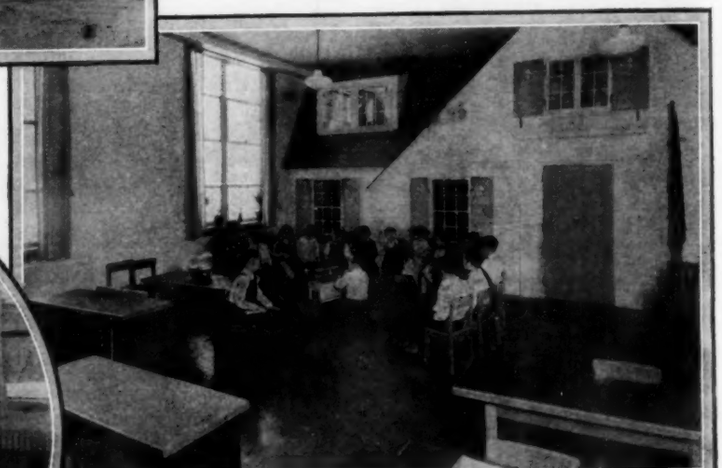
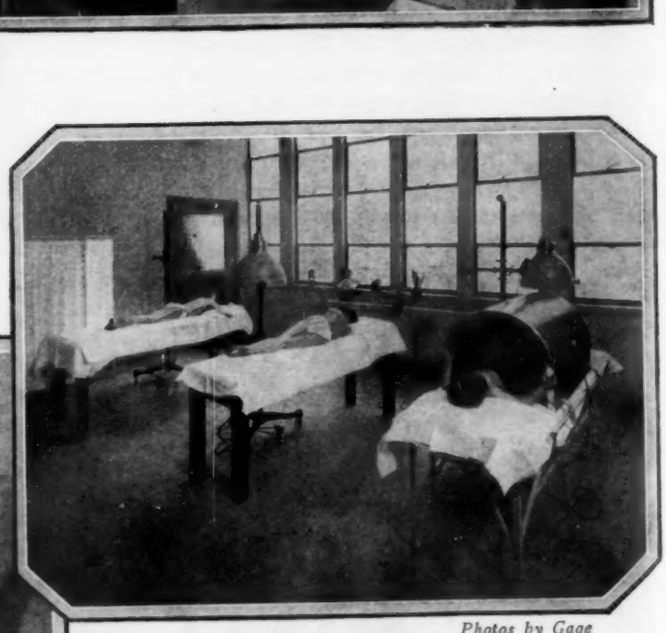
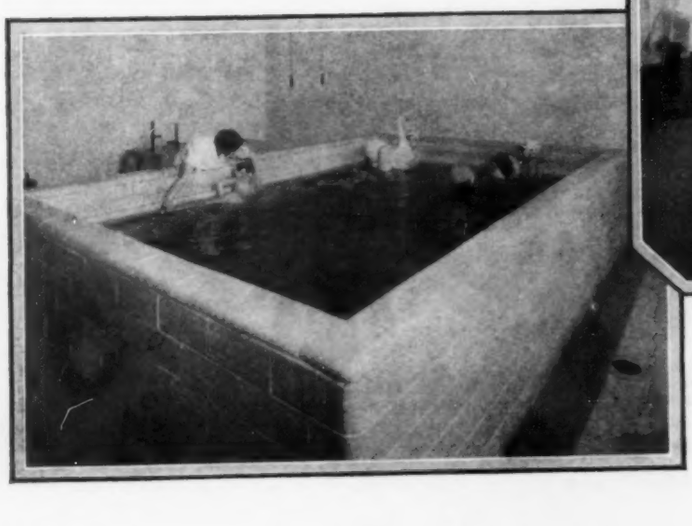
ANN J. KELLOGG SCHOOL











Photos by Gage

A Project in Child Health

The W. K. Kellogg Foundation

By

STUART PRITCHARD

WITH the desire of establishing an organization through which money from various sources could be made available for the benefit of the children of the world, W. K. Kellogg, the cereal manufacturer of Battle Creek, Mich., and London, Ont., made possible the creation of the W. K. Kellogg Foundation. He gave a large sum of money and promised that if the board of the foundation proved itself successful in developing a desirable and worthy program, this gift would be augmented from time to time by further donations.

The foundation board consists of seven members, four of whom must be successful business executives; the other three may be chosen from the professions. The permanent headquarters of the board are in Battle Creek, Mich.

The purposes of the foundation are directly or indirectly to become actively engaged in child welfare; to consider ways and means of helping in matters of child health, child education, child recreation and child character building, and to influence school children so that health education may, in turn, penetrate to the school, the home and the community.

The activities of the foundation are not limited to any country, race, creed or religion, nor are they to be confined within any geographic boundaries.

At the present time the chief interest of the foundation lies in the rural school problem. It is desired to encourage the consolidation of small country school districts and to establish a central school including all classes and grades up to university entrance, a school in which vocational training and health courses may be added to the curriculum so that the rural children may have an opportunity equal at least to that of urban pupils.

School districts are so grouped that the consolidated school building with its modern equipment and gymnasium will act as a social, civic and community center and will form an educational unit for the neighborhood.

The foundation will supply the health supervision of the consolidated school for an indefinite period of years, with the hope that in the future the community will see fit to continue most, if not all, of these activities, so that the work may be transferred to some new field.

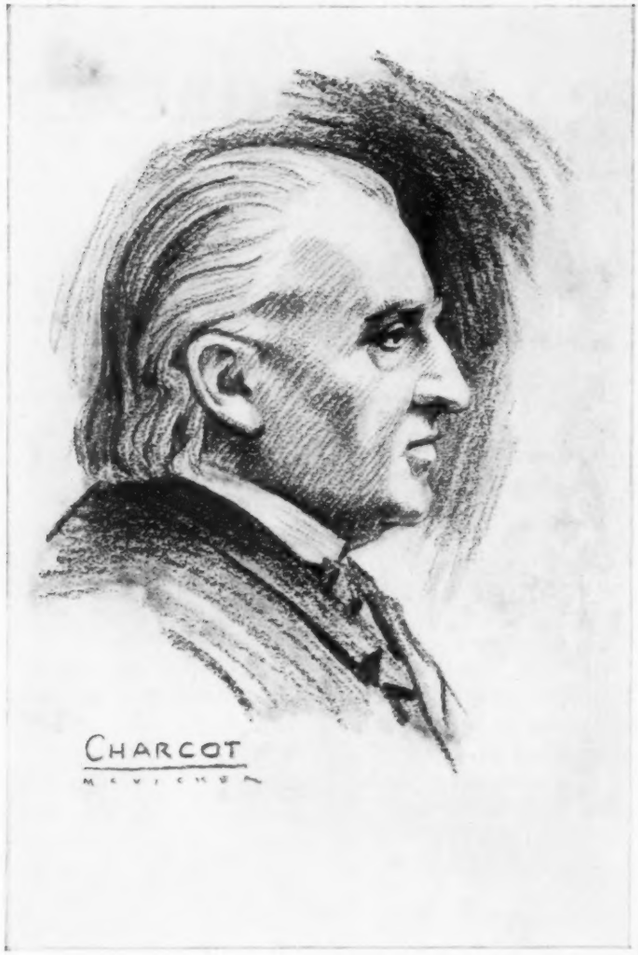
Some of the health activities to be considered by the foundation are the examination of the hearing by the aid of the audiometer; the study of vision, including refraction; dental inspection and prophylaxis; examination of the nose and throat, the blood, lungs and heart, and x-ray examination of the chests of all children in the schools. The program will also include the study of nutrition, mental defects and behavior problems, while lectures on health subjects will be given in the various grades, and periodic exhibitions of health films will be held at school and social gatherings.

The results of all examinations, investigations and inquiries will be carefully charted, and reexaminations will be made annually in all cases and more frequently in special instances. The foundation nurses will carry on a careful follow-up schedule to see that children with defects are observed and treated by the family physician and dentist.

According to the plans outlined by the foundation, the child will be able to graduate with an education and a vocation and to enjoy, to a greater measure, good health. The healthy and enthusiastic child is certain to have an educational effect on the parents and the home in health matters. Lectures and entertainments will be given in the school on certain evenings for the benefit of the citizens of the township so that the subject of public health may be explained.

During the entire health supervision program, the school boards, the children, parents and community will be constantly reminded of the importance of the family physician. He is made a part of all programs and is to be paid for his work.

The foundation makes it a rule also that no territory shall be entered without the consent, approval and promised cooperation of the local medical society, and all matters of procedure are to be discussed with its executives. In this way the local physician takes an active part in the program; his wishes are considered, and it is the desire of all concerned to elevate his standing in the district and to enlighten the citizens more fully regarding the value of the doctor to the province or state, the community and the individual.



Pioneers of Medicine

Jean-Martin Charcot

By

Claude Lillingston

I am but mad north-north-west; when the wind is southerly, I know a hawk from a handsaw.
—Hamlet.

THE GLAMOUR surrounding Charcot in his lifetime obscured the true value of his work and of the man himself. A halo is not conducive to a dispassionate, analytic examination. If Charcot's admirers invested him with a halo of sanctity, the nimbus with which his enemies credited him was of quite another kind. At the height of his fame, Charcot was probably the most abused as well as the most blindly adored leader of medicine in France. His striking and picturesque personality lent itself to the artistic talent of both sides. For if one's personality is sufficiently forceful, one will serve equally well as a model for either saint or sinner; all depends on the angle from which the artist draws his subject.

Now that nearly forty years have passed since Charcot's death, it is possible to study his work without bias, in the sobering light and perspective that time provides. And there can be no doubt that, seen from this safe distance, he still stands out as a giant. When he began to practice medicine, little was known of the functional and organic complaints of the nervous system. The true nature of hysteria was hopelessly obscured by the most profound ignorance, which formed the sandy foundations of a fantastic superstructure of misconceptions. Next to nothing was known of the relationship between certain diseases of the brain, spinal cord and nerves, on the one hand, and the signs and symptoms to which they gave rise, on the other hand. Charcot linked up the two. He traced the causes of paralysis, wasting or twitching of certain muscles to changes in the brain or spinal cord; he interpreted various nerve reflexes and showed how definite functions of the body were controlled by certain fairly well defined areas in the brain. Neurology before Charcot's time was like the world as described in the first chapter of Genesis: "And the earth was without form, and void; and darkness was upon the face of the deep."

Charcot was born in Paris on Nov. 29, 1825, one of the four sons of a coach builder. Quite early in childhood he showed signs of those artistic qualities that were to form a picturesque background throughout his scientific career. He was also a diligent scholar. His father, who had taken stock of these two qualities in Jean-Martin, is said to have addressed his four sons one day in the following terms: "My resources not being such as to permit me to give you all a long and costly education, I must individualize according to the aptitudes each of you has shown: you, Martin, will be a coach builder like myself: you, Emile, will enter the army, and you, Eugène, the navy. As for you, Jean-Martin, as you are industrious and studious you will remain in school, and when the time is come you will choose between art and medicine." Jean-Martin did not make up his mind at once, and in finally deciding in favor of medicine as

a profession, it is probable that he missed the chance of becoming quite as famous in art as he did in medicine. The amateur drawings by Charcot manifest a delightful originality.

In 1844, when he was 19 years old, Charcot began his medical studies, and four years later he became an intern at the Salpètrière Hospital in Paris. The years that followed were lean years, and in order to relieve the strain on the family purse he coached medical students for their examinations. In 1853, he was introduced to a financial magnate, well known in the political world, who took the young doctor traveling with him in France and Italy. The friendship formed during these travels was to last for life, and even after he had become a world-famous consultant, Charcot was at the beck and call of the family of this friend day and night.

Too sensitive and nervous to take up surgery and too fond of animals to take up experimental medicine and vivisection, Charcot at first specialized in morbid anatomy, in a study of the structural changes in the human body caused by various diseases. He taught morbid anatomy for about ten years, becoming a professor in this subject in 1872. His studies of chronic rheumatism and of diseases of the lungs were masterpieces of patient accuracy, and his discovery of the crystals, henceforth to be associated with his name, brought him recognition; but it was not till he began, more or less by accident, to specialize in diseases of the nervous system that he found himself.

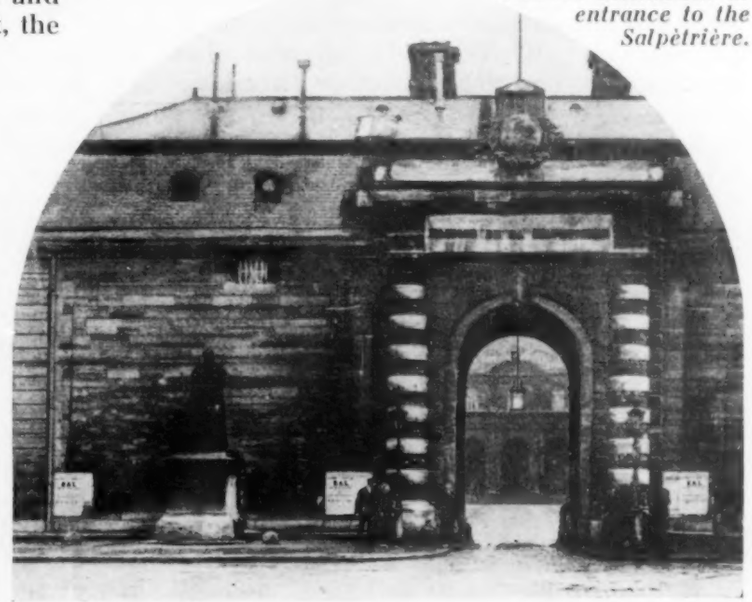
At the Salpètrière in Charcot's early days there was, indeed, a psychiatric service, but what a service! The insane, the epileptic and the subjects of hysteria were collected in one motley group without distinction. Fortunately the building in which they were housed was so dilapidated that it had to be evacuated. Profiting from the ensuing reorganization, the hospital authorities provided a special service for the epileptic patients who were not mad and for the subjects of hysteria; and Charcot, the senior of the two doctors of the Salpètrière, was given charge of this service. Thus it was that he found himself tossed, more or less by chance, into this pandemonium.

Many of his epileptic patients had been admitted to the Salpètrière several years earlier and had remained there ever since. Living cheek by jowl with these female patients who were subject to epilepsy were young girls who were suffering only from hysteria, the manifestations of which had in many cases exasperated their relatives to such a pitch that they had interned these poor creatures in the hospital just to get rid of them. Herded with the epileptic patients, these girls were quick to imitate their convulsions.

How to classify the groups of symptoms and diseases in this ill-assorted crowd! Charcot had to forge new weapons, evolve new principles and new tests. Fortunately he brought to his task none of the prejudices that a profound study of the nebulous literature of his time might have created. Nature and his medical training had conspired to give him the clinical sense—an intuitive insight into the heart of things. He used to make a painstaking, conscientious, detailed examination of his patients, but it was a quick glance that often gave him the clue to the correct diagnosis long before he had discovered it by careful observation followed by logical reasoning. His lightning diagnoses often puzzled his pupils, who would ask him "why," whereat he would reply with some impatience: "I cannot tell you, but it is such and such a disease; I just feel it is so."

But if Charcot got his first clue by clinical inspiration on the first glance at a patient he was the last man in the world to leave matters there or to draw far-reaching deductions from such slender premises. Having obtained his clue, he would study it from every possible angle, examining the same patient every day for weeks if need be, and setting one of his assistants the task of pursuing this clue further in the library, in the hospital, in the postmortem room or in any other place where supplementary information might be found. With his master mind to help them, there was less chance of his assistants going astray in their researches and finding themselves in the end in a blind alley than if each had gone on an independent quest.

Charcot was a man of precision, of routine. With his many irons in the fire, several of them would have come to grief had he not regulated his life by the clock. At 8 o'clock punctually every morning he would be awakened by his dog jumping on his bed. His devoted wife read



Charcot monument at entrance to the Salpètrière.

the papers to him while he dressed. His breakfast, taken standing, was followed by a cigar smoked in his library. Carriage and pair brought him, reading all the time, to the Salpètrière Hospital at 9:30. He seldom went into the wards, preferring a consulting-room in the hospital, to which an unending chain of patients was conducted.

A far from kindly sketch of Charcot as a physician has been drawn by Dr. Axel Munthe in "The Story of San Michele": "Charcot for instance was almost uncanny in the way he went straight to the root of the evil, often apparently only after a rapid glance at the patient from his cold, eagle eyes. . . . Short of stature, with the chest of an athlete and the neck of a bull, he was a most imposing man to look at. A white, clean-shaven face, a low forehead, cold, penetrating eyes, an aquiline nose, sensitive, cruel lips, the mask of a Roman emperor. When he was angry, the flash in his eyes was terrible like lightning, nobody who has ever faced those eyes is likely to forget them. His voice was imperative, hard, often sarcastic. . . . Sharing the fate of all nerve specialists, he was surrounded by a bodyguard of neurotic ladies, hero-worshippers at all costs. Luckily for him he was absolutely indifferent to women." As Dr. Munthe played a very unhappy game of hide-and-seek with Charcot, which ended in the expulsion of Dr. Munthe from the Salpètrière, this highly colored portrait should be accepted with some reserve—as a caricature rather than as a photograph.

Having finished his morning's work, Charcot would return with short, hurried steps to his carriage and his reading. The carriage having drawn up outside his home, Charcot would often continue reading in it, supremely unconscious of his coachman's furtive glances as the moments sped by. After about ten minutes, the coachman would gently intimate to his master that he was at home. The afternoons were spent in consultations in his own home or in that of a patient. Royalty failed to impress him. A princess who had tired of waiting her turn outside his consulting-room sent him a message by a flunky, demanding preferential treatment. She did not get a reply, and when, some minutes later, she sent him another message, he exclaimed: "This stranger does not seem to know that we have taken the Bastille"—an oblique reference to the extinction of the aristocracy in France.

His love of punctuality always brought Charcot to a consultation a little before the appointed hour. He would sit in his carriage, with watch in hand, till the hour had struck for his appointment, and he would then enter the patient's house. Woe betide the doctor who had called him in consultation if he were not prompt!

Much of Charcot's work will endure, but much of it has also proved to be faulty. It is one of life's little ironies that it was his faulty work which, at the time, brought him world-wide fame and patients from every class of society, whereas his enduring, pioneer work was of such a highly technical character that none but specialists in his own field could appreciate its value. It was in the matter of hysteria and hypnotism that he evolved theories which subsequent research has for the most part upset. Charcot believed that hypnosis is essentially a symptom of a morbid condition of hysteria or hystero-epilepsy. He himself hardly ever hypnotized a patient, but his many assistants and students practiced hypnotism wholesale and repeatedly on the ill-assorted material at the Salpètrière, and the result was disastrous. It would not, however, be fair to say that all Charcot's work on hysteria was unsound. His demonstration, for example, of hysteria in the male and of traumatic hysteria, that is, the functional ailments following injuries, marked a definite advance in this field.

The discoveries that have stood the test of time and that assure Charcot a permanent place in the ranks of great pioneers of medicine include the identification of a large group of nervous ailments with definite changes in the brain and spinal cord. Every medical student is familiar with Charcot's disease—a deformity of a joint which though swollen and practically useless is neither painful nor tender. It is associated with locomotor ataxia and is due to syphilitic disease of the nerves regulating the nutrition of the joint in question. The nature of countless other hitherto obscure ailments was illumined to a greater or lesser degree by Charcot's many pupils, to whom he was most generous in giving credit for discoveries that had at any rate been inspired if not made by himself. It was not the least of his many gifts that he was able to conjure out of his surroundings men whom he endowed with vision similar to his own.

The strenuous life he had led for so many years had told on his heart, and in 1893 he had an attack of angina pectoris while lecturing. As he left the lecture hall, a broken man, there was a spontaneous demonstration of grief by the men and women present which showed what a hold this man with the face of a Roman emperor had on the hearts as well as on the minds of his many followers. A sudden attack of congestion of the lungs on Aug. 15, 1893, while he was away from Paris with only two of his followers, proved fatal in half an hour. He had wished his funeral to be as quiet and simple as possible, but he held such a place in the hearts of his fellow countrymen that all Paris flocked to his funeral on August 17, when his body was taken from the Salpètrière to its last resting place in the cemetery of Père-Lachaise. The monument raised in his honor stands today at the entrance to the Salpètrière.

The Providential Putt

A Story of a Player Who Substituted Nerve for Nerves

By
HENRY G.
LANGWORTHY

NOTHING could be more essential to the successful winning of the Junior State Golf Tournament for the Dubuque Country Club than the playing condition of young Charles Berg. Although he was only 15 years of age, Charles had played around the links ever since he was large enough to hold a club. In the eyes of Coach Peyton he was decidedly a golfer. The instructor had several youngsters under his wing, but of the lot Berg was by far the best. There was, however, one fly in the ointment. It was now June, with the big tournament but two months away. Lately young Berg had become so nervous and erratic that he was the despair of the junior team. If restlessness, irritability and curious alternating moods were signs of impending trouble, the boy possessed them all.

Under such conditions, would he prove a slender reed on which to lean? A bit perplexed, coach pondered the problem without coming to any definite conclusions. The club had always been noted for the class of young players sent out to the tournaments, and he was naturally anxious not only to maintain that high standard but, if possible, to bring home the trophy itself. There was certainly a big "if" this year with reference to the club's prospects. Did Berg's performance of late indicate an unstable physical condition or was he losing his nerve? The day before, after playing the first fourteen holes fairly well, Charles had lost the fifteenth through carelessness and from that point on had appeared to give up and to care little what happened thereafter. Of course he was beaten. The same thing in one form or another was occurring altogether too frequently. Something was wrong. Coach was beginning to grow a little impatient. He had no use for quitters. In this case perhaps he had better seek other material and not waste time. The matter rested this way for a few days but could not be altogether dismissed. Finally, still in a quandary, Coach determined to bring Dr. Fowler in on the case and see what he had to say, for he admitted that the physician, who was a fine golfer himself and had been a well known athlete in his younger days, was one of the best judges of human nature that he had ever met. The club was fortunate to have such a member on its list. His judgment on a candidate's physical condition, after he had watched him perform a few times, was invaluable and almost uncanny. The doctor missed few of the national amateur sporting events of the country, and this fact, coupled with his own medical training and experience, provided a great fund of valuable information.

"What's your opinion of young Charlie Berg?" asked Coach Peyton as they happened to meet alone one afternoon in a corner of the locker room.

"Having trouble with him?" questioned the doctor.

"Not exactly trouble, but he's terribly nervous and gives up too easily. He's as fidgety and flighty as a giggling girl."

The physician listened attentively. "Tell you what I'll do, Coach," he replied. "You order your boys to have a physical examination tomorrow at 3 p. m. I'll volunteer my services and look them over. After that I may be able to answer your question."

Charlie used to read in bed until all hours.

Coach agreed instantly and said, "I'm afraid the prospects this year are none too good with Berg off his game and hard to handle."

The physician made his report the next evening as they sat together at dinner.

"I looked over your charges, Peyton," he commented. "You haven't much material to work with, as you say, aside from young Berg. The boy's nervous system is certainly shot to pieces. He has a slight enlargement of the thyroid gland, which is running his pulse up a bit, keeping him under high tension and causing loss of weight. The lad has been overdoing at school and taking on too much physical exercise on the tennis courts and the golf links. In addition, he has been drinking too much coffee, eating a lot of highly seasoned foods and reading in bed until all hours of the night. It has cut down his rest and his sleep tremendously. His tonsils were bad, and he just had them out; that will be a good thing as soon as he begins to get the full benefit of it. At present you have a liability on your hands instead of an asset."

"So that's it," commented the instructor. "I suppose your report means that he'll drop off the team sooner or later and we won't be able to use him."

"Not at all—quite the contrary," was the doctor's somewhat surprising rejoinder. "I've a lot of faith in Berg and his golf future if you'll do as I say. It will take a little patience, and you may not like my idea."

"Almost anything is all right with me," the instructor replied resignedly. "Go ahead. I'm listening." He certainly needed the boy's playing ability if his junior team was to be entered and make a showing.

"What Berg really needs is a complete lay-off of ten days, spent more or less in bed, and at least a twenty-minute complete rest before each meal thereafter. He must spend at least eleven hours sleeping every night. It is the only thing that will quiet his pulse and nervous system. This plan together with a bit of internal treatment will get him in shape to spend at least three hours daily in the open air under your coaching. As I had suspected, bad tonsils probably poisoned his system and undoubtedly caused some irritation of the thyroid gland in the neck. There's your cause for his nervous condition and tension. Instead of losing the boy, however, in a short time you can make an even better golfer of him."

The instructor looked his satisfaction and said, "It won't leave a great deal of time for practice, but I suppose it will have to do."

"At any rate," responded Doc cheerfully, "the boy ought to accomplish more in a week after our rest treatment than he ever would in six months otherwise, the way things are drifting. I talked with his parents today. They are in full accord with my ideas and will help out in every way possible."

And so the matter was settled. The boy carried out his bed sentence and rest periods without much grumbling, even though the days seemed eternally long. With patience, however, everything comes to an end. In less than a month Berg was again out on the links, looking 100 per cent better and ready for further lessons and practice. His nerves were quiet, and his pulse was almost normal. There remained but three weeks, however, before the big junior meet. The other boys on the team had been showing fair improvement with Coach doing his best with them. Two of them perhaps played well enough to be candidates for the junior team.

"I suppose I'm terribly rusty and can hardly hit a thing," Berg remarked to the golf instructor

He took his stance—it was now or never.

as they marched to the practice tee his first time out.

"Perhaps," responded Coach Peyton, "but you'll soon pick up. If I were you, I'd concentrate on practice shots and not do much general playing with the other boys. The time is too short to waste many hours in ordinary play if you want to enter the tournament and qualify."

To Charles' surprise his first practice periods and shots were not half bad. He seemed to be without that terrific nervous tension that he used to feel most of the time. He was more calm and less easily upset. Following the instructor's advice, he carried out his practice hours faithfully and scarcely played at all for his own pleasure. He realized that the competition this year would be strenuous. The day of the big match finally arrived. Coach Peyton with his junior team was on hand. Berg was the only one of the three on the team that had not played a complete round of golf in months. He felt keenly that he must be an unknown quantity in the eyes of the coach. He wondered just how he would fare in an actual game under such strange circumstances.

"Play just as you have in practice lately," advised the coach. "Merely keep down the middle of the course and don't waste shots. You don't need to get excited about it."

The qualifying round started in a slight shower, enough at least to make playing conditions a little more difficult. Berg and John Moore, the second boy on the team, managed to qualify safely, but Rusty Potter, the third member, was forced out.

"Too bad, Rusty," sympathized the others. It had certainly been "tough going" after the drizzle of rain.

The tournament began the following day. Berg's first two opponents were excellent golfers but by no means his equals. He had little difficulty in disposing of them, one in the morning and the other in the afternoon, by a margin of three or four holes. His third opponent the last morning of the tournament, however, was a tartar and carried him to the last hole before Berg finally managed to play the winning stroke. He was now in the finals, with but one player between him and the Junior State Championship. Would his nerve and jumpy pulse hold out? The strain was beginning to tell. He finished the early semifinal match about noon. Doc Fowler was on hand to see the finals. After looking him over, Doc insisted that Charlie go to bed for a rest.

"Two hours of complete relaxation lying down is just what you need, Berg," admonished the physician. "It will quiet that pulse of yours."

Coach Peyton was not feeling any too confident over the situation, although his charge had so far delivered everything expected of him.

"It's all a new combination to me," confessed the coach to the doctor. "Here's Berg, who hasn't played a real match in months, spends most of the time in bed, practices little as compared with the rest of the team and yet manages to get into the finals."

"All that's admitted," laughed Dr. Fowler, "but there is one thing you overlooked. The boy has been concentrating on every shot he played in practice. Realizing that only his nerves were at fault, he has honestly tried to make every practice stroke count. I know because I have watched him more than once. Don't worry about the bed treatment and those other soft conditions of mine."

"Right as usual," smiled Coach Peyton, "but what next? Will his nerves hold out? He seems to me to be pretty nervous again."

"That's something no one can answer now," replied Doc. "He may have overdone already, but his play will soon prove it one way or another. I sent him to bed for these two hours as the best preparation for the final game. He still hasn't entirely regained his weight. Without the two hours' rest, he could easily go to pieces."

At 2:30 p. m. the play was on. Opposing Charlie Berg in the final round was Jerry Tweed, a raw boned youth of 16. Although his motions and general carriage were extremely awkward, he certainly could play golf. His shots from the tee, apparently without a sign of physical effort, carried a long distance. Berg had a hard time adjusting himself to the slightly older youth's play during the first nine. At the turn he was actually 1 down, almost without realizing it. His opponent played one of those easy but deceptive games that kept him in the lead. Charles played on doggedly, hole after hole. On the hilly sixteenth and seventeenth he made use of his special practice approach shots and stuck them both within 2 or 3 feet of the pin. The result was a succession of two one-putt greens, making him at last 1 up and 1 to go. He was finally in the lead. For the first time the gallery gave him a good hand. On the last hole he felt his hands trembling violently as he grasped his driver. So far, it had stood him in good stead.

"I can't fall down now," he resolutely said to himself, seeking to gain courage. "I've got to go through." Both Coach and Doc Fowler, he knew, must be watching him closely. Sparring for a moment of time, he stopped to wipe the perspiration from his face and hands. His breathing seemed to clear a little. Well, he would go on. He finally teed up and swung somewhat stiffly. The shot was neither good nor bad. His opponent did much better.

"Cracking," a voice in the crowd said audibly.

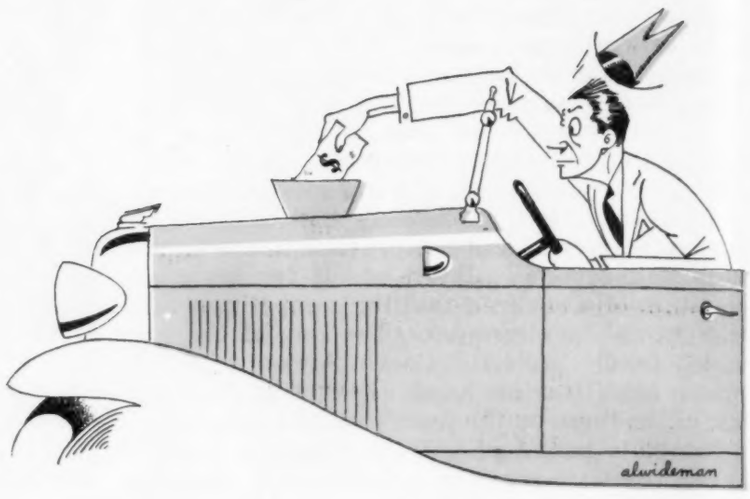
On the dog's leg eighteenth, his second was barely to the turn because of his shaking hands. Tweed's second was a beautiful slice, well on his way around the corner, leading by many yards. Berg again wiped his hands, which were

(Continued on page 522)

The Blood Pressure Racket

By

A. Lee Briskman



The driver may owe for his car, but he must pay the engine as he goes.

THE study of the blood pressure is interesting to all, whether sick or well, rich or poor. Blood pressure is as liable to wide and sudden variations as are the figures on the stock exchange and, like the latter, by a marked change may ruin any of us for life at the most unexpected time. A sudden rise in blood pressure following an emotional change, even though it is temporary, may transform a peaceful, law-abiding citizen into a cold-blooded murderer; it may stimulate a prize-fighter to come back and change an inevitable defeat into a victory; it may help a man to hold a crowd at bay single-handed; it may result in another Great War, and it may even go so far as to make an ordinary, unpretentious, nervous, brow-beaten, hen-pecked animal talk back to his wife!

The clinical study of blood pressure began only forty-eight years ago when the sphygmomanometer, an apparatus for measuring the blood pressure, was discovered. Statistics show that approximately 5 million persons in this country alone have high blood pressure. One in five adults has it, and the number is increasing because the average expectancy of life is increasing.

High blood pressure is a disease of middle life and thereafter, but recently the incidence has been rapidly increasing in the younger generation. In 2,000 persons examined, 5 per cent of men and 2 per cent of women under 20 had high blood pressure, while the percentage for the two sexes became more equal as the ages increased. Heart disease is responsible for more deaths than either cancer or tuberculosis; suffering and premature deaths from heart diseases are preventable in many cases. Dr. G. E. Fahr estimates that approximately 140,000 persons die annually in the United States from high blood pressure and that about half of these deaths are due to heart failure as a complication. More than 2 million persons in this country have serious heart trouble, and 1 in 50 is rejected by the insurance companies because of heart disease. According to *Public Health Service* for the year 1928, out of a population of 25 million the death rates per hundred thousand were as follows: heart disease, 228; kidney disease, 106; cancer, 105, and pneumonia, 100. Seventy-five per cent of all cases of heart disease developed under 10 years of age. Rheumatic disease was the first in importance in producing heart disease in this age group.

What causes normal blood pressure? Does it depend on the heart, the nature of the blood, the state of the blood vessels, or the amount of resistance encountered within the blood vessels? The normal pressure depends on all these factors, but any one of them may cause an abnormal blood pressure. Let us try to explain the normal mechanism of the blood pressure. Take a rubber ball and attach a straight tube to it. If the ball is now filled with water, it will take a certain amount of pressure on the ball to force the water out through the tube. Now stick another tube into the ball. It will require still more pressure to force the water through the two tubes. Add a few branching tubes to the straight ones, and bend these tubes at different angles. Now picture this ball, if you can, with about 5 feet and 8 inches of glass pipes extending from it with numerous twists and turns and branches, and on several branches some more balls. As you already realize, it will require a great deal of pressure to force fluid through this crooked tree of pipes. If these pipes return to the main ball we then have a closed circuit containing a double column of fluid almost 6 feet in height.

Imagine that this ball is the heart. The rigid glass tubes are now elastic blood vessels, and the fluid is blood instead of water. We will replace the other balls with some lungs, a liver, some kidneys, a brain, 27 feet of intestine, and a few other organs. So we now have a human power

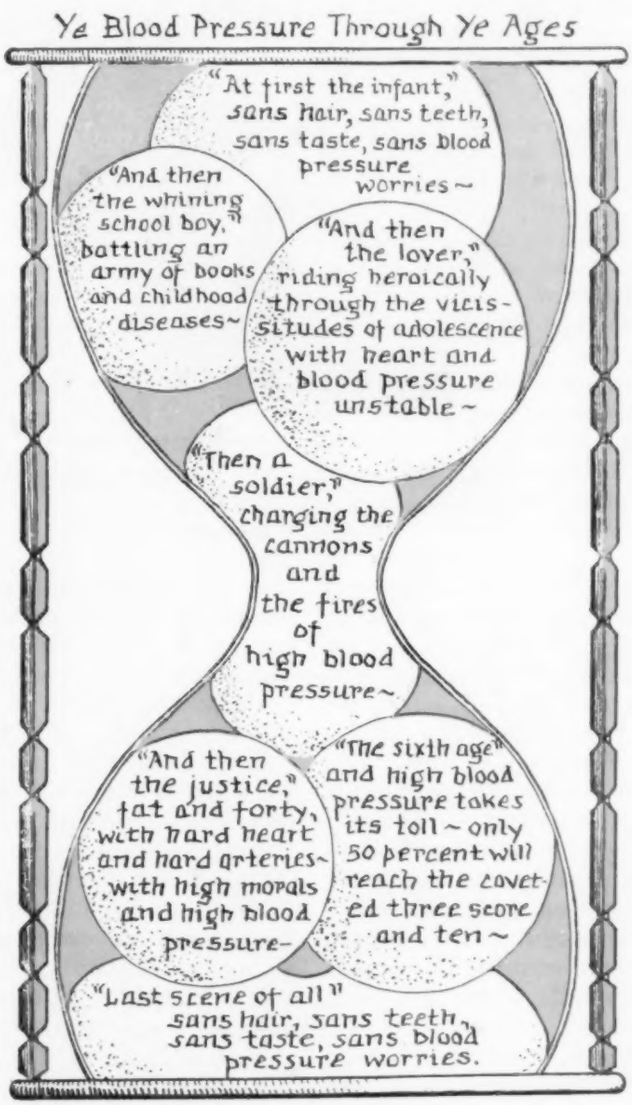
plant with a central dynamo as the source of the energy supply. Just feel your pulse and see for yourself how well your power plant is working.

Now just what part does the heart play in maintaining the blood pressure? It beats on an average of 72 times a minute. In a person of average size it puts out about 2 gallons of blood every minute. The time required for a drop of blood to make a complete circuit of the body is estimated at twenty-three seconds, necessitating from 26 to 28 beats. In making one complete circuit, this drop of blood passes through the heart twice, but only once through the rest of the body. Day by day, your heart at bodily rest ejects several thousand pints of blood. The difference between rest and severe exercise may involve changes as great as 1,000 per cent. This represents an output of 30 pints of blood a minute.

The amount of work which the heart does in one day is equivalent to the additional energy expended by a man climbing half-way up Pike's Peak or shoveling 26 tons of coal up a 3-foot incline. If he weighs about 150 pounds, this will equal an amount of energy sufficient to lift 90 tons 3 feet high, or it may be expressed as the equivalent of lifting half a pound 40 inches high with each beat. Under normal conditions, when the pulse rate is about 72 beats a minute, approximately 8 pints of blood are passing through the heart every minute. While a man is operating a linotype machine under normal conditions, about 20 pints of blood go through his heart every minute. During violent exercise, all the blood in the body (8 pints) goes through the heart in about twelve seconds.

Assuming that the heart beats 70 times a minute at ordinary pressure, the blood courses through the vessels at the rate of 207 yards in a minute, 7 miles an hour, 168 miles a day, and 61,320 miles a year, beating 50 million times! Imagine this daily racket for three score and ten years and perhaps longer. If a man 84 years of age could have had one single blood corpuscle floating in his blood all his life, it would have traveled in that time nearly 5,150,000 miles. This is even more remarkable when we recall that all this work is being done by so small an organ as the heart, which weighs but 10 ounces, whereas the liver weighs about 3 pounds. The heart is about 5 inches long and 3½ inches wide, has a capacity of about 10 ounces and is one-fifth the weight of the liver. The body weighs 205 times as much as the heart and 50 times as much as the liver. (In the words of the Psalmist, we are "fearfully and wonderfully made.")

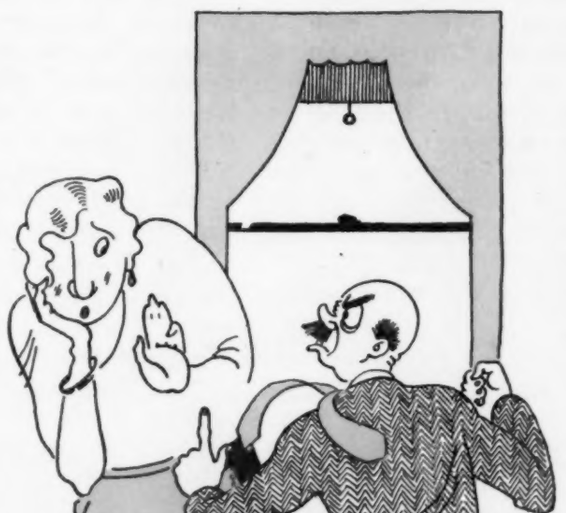
The heart is unlike any other organ in the body. It works all the time, even when we sleep. Compare it with the brain, for instance. When we rest, the brain rests also, and in some people I think it rests always. The heart requires eight-tenths of a second for a complete cycle; that is, it works four-tenths of a second and rests the other four-tenths. But even while it is resting, the blood vessels keep working by the natural elasticity of the muscle fibers. Now if you have a rapid pulse beating 100 times a minute, and you rest and thereby reduce the rate to 80, this will mean a saving of 20 beats a minute, or 28,000 beats a day. In other words, your heart saves four hours' work out of the twenty-four by merely causing a reduction of 20 beats a minute!


Ye Blood Pressure Through Ye Ages
"At first the infant," sans hair, sans teeth, sans taste, sans blood pressure worries~
"And then the whining school boy," battling an army of books and childhood diseases~
"And then the lover," riding heroically through the vicissitudes of adolescence with heart and blood pressure unstable~
"Then a soldier," charging the cannons and the fires of high blood pressure~
"And then the justice," fat and forty, with hard heart and hard arteries~ with high morals and high blood pressure~
"The sixth age" and high blood pressure takes its toll~ only 50 percent will reach the coveted three score and ten~
"Last scene of all" sans hair, sans teeth, sans taste, sans blood pressure worries.

Let us consider the part played by the blood vessels. Hardening of these vessels almost always causes high blood pressure. It may be said in general that there are four factors that cause this hardening: (1) the normal wear and tear of life; (2) acute infections (venereal diseases, tuberculosis); (3) intoxications (alcohol, lead, tobacco), and (4) personal habits (worry, overwork, overeating).

Let us consider for a moment the first factor, wear and tear on the body. As has already

been said, the blood vessels do not enjoy any rest. Not only does a ceaseless rush of blood pass through them at the rate of 10 inches a second, but the walls of the main pipe are subjected to a distending force of 25 pounds to the square inch from 60 to 80 times a minute, or from 80,000 to 100,000 times in twenty-four hours. Some of our tubing resists the wear and tear of daily life while some can not, and at 40 we have arteries 60 years old. Sir William Osler states in his textbook: "Always somewhere is a weakest spot, and too often in the circulatory system. The tragedies of life are largely arterial. Represented in the old mythology as winged, Nemesis, the goddess of the Inevitable, may still be pictured with a wheel, the wheel of life, to the ceaseless revolutions of which the circulation ministers. How often does her fatal touch call away in their prime the best and bravest—men whose only fault has been the unselfish abuse of the body machine. Appearance of the individual may mean nothing. Shakespeare says 'The outward shows may be least themselves.' A robust, vigorous-looking man in the prime of life may have vessels in the most advanced stage of sclerosis. The active muscular business-man of 45, who all his life has never had to spare himself and who has prided himself on his 'fitness' for everything, is shocked to find that there is something wrong with his machine; or to the young-old man who has reached the grand climacteric without a day's illness, Nemesis whispers, 'time is up.' Others go down rapidly and suddenly following a domestic shock or financial crisis. Some fail without any apparent cause. Early graying of the hair may have nothing to do with hardening of the arteries and often does not accompany it."



A sudden rise in blood pressure may even make a brow-beaten, hen-pecked animal talk back to his wife!

What takes place after we get high blood pressure? A study of 500 patients with high blood pressure showed that the heart was involved first, causing 27.4 per cent of those affected to seek medical advice for leaking valves, congestive heart failure, skipping of beats, and angina pectoris. The nervous system was the next to be involved, causing 20.2 per cent to seek relief; the symptoms were ringing in the ears, dizziness and apoplectic strokes. Next came patients with changes in the blood vessels, such as hardening of the arteries, dilatation of the aorta and formation of aneurysms or sacs on the blood vessels. Believe it or not, the kidneys were the last to be affected.

The question of obesity is an important one. The overweight individual is more prone to high blood pressure and its complications than the normal or the underweight person. Drs. Master and Oppenheimer found that 67 per cent of their overweight patients had an increased blood pressure. In general, the more they weighed the greater was the blood pressure. With advancing years the blood pressure also advanced in the obese. The longer the duration of the obesity the higher was the blood pressure. The fat individual usually complains of shortness of breath, fatigue, palpitation, dizziness and headache. With a loss of weight following a decrease in food intake, these symptoms disappear. The obese person can take far less exercise than the individual of normal weight.

Persons with low blood pressure are not bad operative risks. They become easily fatigued, it is true, but they can stand considerable physical and mental exertion. In young persons, however, low blood pressure may indicate a pretuberculous state. Low blood pressure is not a cause of rejection for life insurance, although in 3,000 cases the mortality was two-thirds higher than for the average person with normal blood pressure. A study of 400 persons showed that while high blood pressure is a disease and frequently leads to pathologic changes, low blood pressure is not a disease and does not lead to pathologic changes.

Every driver of an automobile knows how small a thing may interfere, even to the point of fatality, with the operation of the carburetor, how quickly the mechanism dies the moment the combustion ceases. There is no reserve energy stored in the springs to get him home when the tank runs dry; nor can the engine run him home tonight and make up for the expenditure by panting till morning in the barn, as the

old bay mare could do in the good old days. He may owe for his car but he must pay the engine as he rides.

The human machine, however, is different. It can go into debt for its oxygen and pay it back later. A track man can run his hundred yards in ten seconds by breaking down glycogen or sugar into lactic acid; he may then spend the next half hour getting oxygen enough to burn up the acid that has accumulated, thereby recharging his muscles with glycogen, and be all set for the "quarter mile."

The normal blood pressure varies with the individual. Every person has two blood pressures, a high and a low. When the doctor informs the patient concerning his blood pressure, he usually gives the figure for the higher pressure in order to avoid confusion in the patient's mind. In a normal young man, the higher, or what is termed the systolic, pressure is between 110 and 120 mm. of mercury; this means that immediately after the heart contracts it has to overcome a pressure equal to between 110 and 120 mm. of mercury. While the heart is relaxing and filling up there naturally still exists a certain amount of pressure. This is the lower one that is called the diastolic pressure and is normally about 80. It is in many cases more important to the doctor than the systolic. A good rule to keep in mind in estimating normal pressure is this: A normal person 20 years old has a systolic pressure of approximately 120. For each increase of one year the pressure goes up half a millimeter. For example, a person 40 years old should have a pressure of 130 mm.

The blood pressure is a barometer. To the patient it is merely a number, or it is "a little high or a little low," but to the physician it is a fairly reliable report from the various stations that the patient possesses. An early rise tells the physician that a storm is coming; it is up to him to find out what station it is headed for and then try to prevent a disaster.

If you have an expensive watch that fails to keep correct time, you don't write to a jeweler in New York and ask him why it doesn't keep good time and what you should do to fix it. But somehow, there exist thousands of persons who will write to a quack doctor in answer to his advertisement and ask him to treat their high blood pressure, although he has never seen the patients and wouldn't know what to do after he had seen them!

I have referred to increased resistance as a cause of high blood pressure. Consider the kidneys, for example. There are approximately 2 million filter plants to take care of the urine. If something causes the blood vessels in these plants to become hardened, then the heart has to work against unnatural resistance. It then pumps against 2 million dams instead of 2 million filter plants and naturally has to work much harder. So the heart gets big and tough and does overtime work. But overtime means double pay, and the rest of the body does the paying.

They say that we don't live long nowadays. If a man is as old as his arteries, then some of us have it all over Methuselah. Once a person gets high blood pressure with degeneration, scarring and hardening of the arteries, the damage is irreparable and "all the King's horses and all the King's men" can help him no more than they could Humpty Dumpty. But all is not lost. Sometimes a high blood pressure is Nature's effort to compensate for trouble elsewhere in the body, and to lower the pressure would be like pulling the crutches out from under a cripple. One doctor observed a patient who had a systolic pressure of from 200 to 260 for forty years without a serious break. This, of course, is an exception, but the patient must heed the warning to slow down and adjust his way of living, just as the tuberculous patient learns to do. He need not give himself up. All he need do is lower his sails and keep right on going.

Dr. Eli Moschcowitz describes the type of individual who gets high blood pressure. Of these persons he says: "Physically they are soft-muscled, pudgy, short-necked, ungraceful, nonathletic, overweight. Physically, they are the antithesis of the child. They do not play. They have no illusions. They are tense, are irritable and have single

BLOOD PRESSURE TABLES

(from the Branath Symonds tables)

GENERAL RANGE OF BUILD GROUPS

Weight in Pounds

Height	9	8	7	6	0
5 ft. 4 in.....	90 and under	91 to 104	105 to 118	119 to 132	133 to 147
5 ft. 8 in.....	101 and under	102 to 116	117 to 132	133 to 148	149 to 164
6 ft. 0 in.....	115 and under	116 to 133	134 to 151	152 to 169	170 to 188

	1	2	3	4	5
5 ft. 4 in.....	148 to 161	162 to 175	176 to 189	190 to 210	211 and over
5 ft. 8 in.....	165 to 180	181 to 196	197 to 211	212 to 235	236 and over
6 ft. 0 in.....	189 to 205	207 to 224	225 to 242	243 to 268	269 and over

SYSTOLIC BLOOD PRESSURE FOR MEN

Ages	Build Groups 9	8	7	6	0	1	2	3	4	5	All Builds
15 to 19.....	114	116	120	122	123	125	126	128	130	131	123.5
20 to 24.....	117	119	121	122	123	125	126	128	130	131	124.2
25 to 29.....	117	120	121	123	124	125	126	128	130	131	124.5
30 to 34.....	118	120	121	123	124	126	127	129	131	132	125.1
35 to 39.....	118	121	123	123	124	126	127	129	131	132	125.3
40 to 44.....	119	121	123	124	126	127	129	130	132	133	126.4
45 to 49.....	121	122	125	126	127	129	131	132	134	135	128.2
50 to 54.....	123	124	126	128	130	131	133	134	136	137	130.2
55 to 59.....	126	128	129	131	133	134	137	138	139	140	133.5
60 over.....	128	129	132	133	135	136	138	139	140	142	135.2
All ages.....	120	122	124	125	126	128	130	131	133	134	127.6

Of those whose blood pressure is over 140 { 22% are underweight; 14% are overweight

Of those whose blood pressure is under 110 { 53% are underweight; 6% are overweight

(E. G. Huber)

NOTE: The blood pressures of women are slightly lower than those of men up to the age of 40. Above this age the blood pressures of women run a little higher than those of men. There is an increase in blood pressure readings with increase in weight. It is evident that as the individual grows older, say after the age of 45, he must keep his weight down if he wishes to keep his blood pressure from going up.

track minds. While their mental horizon is narrow, within this range they are terribly tense and pursue their aims with a grim desperation.

"Many of such individuals belong to the class of the successful, if by 'success' one refers to the accumulation of wealth or power that is not always accompanied by a spiritual or ethical uplift. One can readily grasp why such individuals are successful, for they throw everything in life aside, especially play, that does not directly contribute to their purpose. One of the commonest and most pathetic experiences in medical practice is the tragedy of the 'successful' man.

"On the other hand, it is not always the desire for 'success' that causes mental conflict. Those who have fallen by the wayside, the poor and the meek, may acquire high blood pressure as well. Most of such individuals have lived what may be called a 'hard life.' The struggle for existence has been early and their life represents little else than a desperate battle to fill the belly need. They have no time for play. Here again the child that is in all of us, goes early, and . . . it rarely heeds the summons to return."

The treatment of high blood pressure varies considerably. The problem of diet is a story in itself. It has been said that after forty years there is "death in the pot." Dr. R. M. Moore showed that after a meal of meat the increase in the heart rate regularly amounts to a rise of from 25 per cent to 50 per cent above the fasting level and persists, to reach a total of many thousand extra beats. Dr. Moore points out that a protein meal thus throws an extra burden of work on the heart, which is comparable in extent to the heart's total performance during three to four hours under fasting conditions.

Sir Clifford Allbutt said that "one main cause of rising blood pressure in middle life, is overeating. That is to say of food in excess of work and excretion." The express engine capable of running from 50 to 60 miles an hour, if stoked for that purpose and put into the station yard to "shunt" empty cars, will go to pieces very soon. That is what many of us do with our engines. We run the engine at 50 miles an hour and supply fuel for 75. In our bodies, as in the engines, damage is certain to follow from the accumulation of waste and the disproportion between intake, work done and output. It is a common experience to find the person who so overtaxes his system looking well and performing his daily duties. Sudden death may be the first and only manifestation. But with a properly balanced diet, the same person may successfully pray the prayer of Hezekiah and get, like him, an extension of fifteen years or more.

We all know that the story of the heart and blood pressure is that of the main spring of life. The heart is a sealed motor of the human machine, practically inaccessible. When it is approaching its last beat, even the physician with the experience of the ages behind him can but realize that all men are of the same mortal clay in the hands of the Potter.

LOOKING INTO THE FUTURE WE SEE:

Gladys E. H. Hosmer's timely suggestions on "Feeding the Summer Camper" and making "food fussiness" disappear.

Dr. O. Jason Dixon's pertinent advice and warnings concerning "Ear Disorders in Childhood."

A discussion of allergy by *Dr. C. Ulysses Moore*, who points out that "truly one man's meat may become another's poison."

"The Plumber's Contribution to Health," as it is explained by *Dr. John P. Koehler*, who suggests that "perhaps a Plumber's Day or 'say it with plumbing' advertisements would make us all think more of what the plumber has done for us instead of how he has 'done' us."

The problems that perplex the preschool child, interpreted and illuminated by *Dr. Lee W. Thomas.*

"The Mayor and the Milkman," who are introduced to us in a story dealing with pasteurization, written by *Dr. Charles H. Lerrigo.*

Novel and useful devices to make meal preparation easier. *Doris W. McCray* shows how the time and labor regularly required for performing certain household tasks may be cut into half or less.

Many other interesting and instructive articles, among which are a discussion of anemia by *Dr. Cyrus C. Sturgis;* a word portrait of Ilya Metchnikoff by *Dr. Claude Lillingston;* a clarification of the functions of carbohydrates by *F. C. Koch;* a description of "moulage" in criminal investigation, by *L. J. Kaempfer;* an exposition on fruits by *Miss E. M. Geraghty;* further incidents concerning Lincoln, by *Dr. Milton H. Shutes,* and another golf story by *Dr. Henry G. Langworthy.*

Seeing Three Ways

By H. H. GLOSSER

A PERSON with two good eyes sees in three ways, or, to state it differently, the eyes have a threefold function: (1) central or sharp vision, (2) peripheral or side vision and (3) binocular or two-eyed single vision.

The central or sharp vision is that which one uses when looking directly at an object, whether that object is close or far away. When this vision is normal, a distant object can easily be recognized, a paper with fine print can be read without difficulty. But when this central vision is lost, a blur seems to exist between the eye and the object; this blur cannot be removed by the use of correcting lenses. To produce the effect of such a loss, try this experiment: Close one eye and look fixedly at something across the room, such as a light plug; now hold a small object such as the ball of a hatpin before the pupil of the open eye and as close to it as possible. The light plug will be wholly obliterated, while objects to the side can be clearly seen. Now turn the eye so that it looks to one side of the head of the pin; the object toward which the gaze is directed will be clearly seen. This experiment demonstrates central vision and shows its value. Central vision may be absent in one eye without the knowledge of the person affected, the reason being that the good eye does all the acute seeing, and no separate test has been made of the central vision of the poor eye.

Peripheral or side vision is the ability of the eye to see objects not in the area of central vision or objects not in the line of vision. While objects are not seen as distinctly as with central vision, yet side vision is a most useful function of the eye. Without it, one would be looking, as it were, through a small tube, and the range of vision would be greatly limited. With it, one is enabled to see objects above, below and to either side when looking directly ahead and, what is of great importance, to note moving objects. If this form of vision were absent in his eyes, Babe Ruth could not do such good work with his bat. While standing at the home plate, he watches the pitcher but neither the bat nor the rapidly moving ball, for if he attempted to watch these he would dislocate his neck. The movement of the speeding ball is noted by this side vision with but slight movement of the eyeballs. The delicate mechanism associating eye and brain and muscle, which we all have and which is a subconscious coordination, is so highly developed in Ruth that he causes contact between the ball and the bat in an unusually large number of instances. Elephant hunters are well aware of the fact that the eye of the elephant has poor central vision but highly developed side vision. When too close to the animals for safety, hunters know that the slightest movement on their part will reveal their presence but that absolute stillness may save them. Now try this experiment: bandage one eye and gaze fixedly at a small object held about 1 foot before the open eye; with one finger try to outline the extent of the side vision, above, below, to the right and to the left, and note also how quickly a movement of the finger is observed. The size of the peripheral field of vision, as it is called, is limited by the bony prominences around the eye.

The third form of vision, the binocular or two-eyed single vision, is accomplished, as the name indicates, by looking at an object with both eyes open. The fact that the object does not appear double is proof that this form of vision is present, assuming, of course, that the two eyes see equally well. Two-eyed single vision serves the purpose of determining distance; it gives depth perception or perspective. It follows, therefore, that because it is effected by the use of two eyes,

those who have lost the use of one eye have an imperfect idea of distance as measured by the eyes. This important function of the eyes is used every time one reaches for an object, avoids collisions in walking or driving, or prevents sudden jolts when walking over uneven surfaces. Try the experiment of threading a needle while keeping one eye closed or of trying quickly to touch the tips of the two forefingers. The single eye must now perform the function of two eyes working together; it must accurately and quickly measure the location of each hand and particularly its distance from the eye in order that proper approximation may be made.

These three forms of vision are active at the same time without the slightest interference. They are, fortunately for us, under the control of the automatic or subconscious mind.

In order to appreciate the constant activity of these three forms of vision, walk along a busy thoroughfare toward a corner. The central vision notes and recognizes an approaching person or car while the peripheral vision sees the movement of a person or car along the cross-street and the binocular vision estimates the distance of the person or car.

It would be a difficult task for a driver of a car to make the conscious effort, as he drives, to see in these three ways. Should he have to will to see an approaching car and will to see a car coming from the right and again will to estimate the distances of these two cars from himself, there would be far more accidents than even the present records show. The subconscious mind controls these matters and coordinates them so beautifully that under the control of a mind free from distractions the driving of a car or any other work requiring the use of the three forms of vision is accomplished without conscious effort.

The Providential Putt

Continued from page 515

perspiring profusely, and selected a long iron in a desperate endeavor to reach the green and stick. It proved a beauty, stopping some 15 feet from the pin. This was encouraging. The crowd acknowledged the accuracy of that long iron shot with clapping hands. His opponent was also on and, as usual, inside his own ball by at least 8 feet. In fact he had a good chance of sinking his putt and tying the match forthwith. Berg took his putting stance with the feeling that it was now or never. If he failed to win, the advantage and feeling of confidence for his opponent would be a great deal to overcome. He must get a draw. A draw here would actually win the match. Not much to ask, but could he do it?

Under any other circumstance he would have been confidence itself. His perspiring and shaking hands and his pounding pulse, however, warned him that his old symptoms of goiter were at work. Again he took a towel and wiped his hands and forearms. His putting shot overran the hole by nearly 4 feet. Some of his followers groaned. It gave his opponent a chance either to sink his putt or to lay a stymie, either one of which would win and force the match to extra holes. Tweed putted carefully but with confidence. The ball stopped almost on the edge of the cup—a beautiful putt and, while it failed to drop in, it nevertheless partly stymied him. It looked like a sure hole for Tweed to square the match. Berg feeling that this was indeed a last chance took his position and tried again. The ball sped from his putter entirely too fast but by good luck struck the other ball a glancing blow, knocking it aside. It lay so close to the hole that the blow instead of spoiling his shot actually made his own ball fall into the cup. He had won, and the game was over. The match was his by 1 up, and the junior trophy was saved to the club for another year.

"Great work," remarked Coach Peyton as he came up through the crowd with the physician. "It took nerve to play that last putt of yours that way."

Young Berg caught the quizzical eye of the physician at this point, and they both laughed spontaneously. Evidently some one besides himself knew that only the grace of Providence had saved that hole to give him a draw.

"Accidents will happen," quoth Doc Fowler with a smile, "but I am sure that you would have won anyway!"

Debunking the Vitamins

By E. J. Kohman

NO OTHER discovery pertaining to foods and nutrition has had an effect so far-reaching as the discovery of vitamins in their many relationships. It has impressed the medical profession more than anything else with the direct correlation of the diet and general health. Physicians have come to look on control of the diet as one of the most important factors in the treatment of impaired general health as well as of many specific diseases, because faulty diet is now known to be a material cause of disease. The diet has even become a matter of legislation. In one country, the export of butter is controlled by law, and in another the polishing of rice is said to be illegal.

Little wonder, then, that vitamins are discussed, not only in scientific circles but in popular books, magazines and daily newspapers. Their almost magic effect in minute quantities under certain experimental conditions has made it a temptation to dramatize and overdramatize. A wonderful opportunity is thus created to foist useless preparations, harmless in most cases, on a vitamin-conscious public. It is only natural that this is confused with the advice of nutritionists on correcting conditions that demand a consideration of foods.

When modern industrialism was applied to the food supply, the chemical composition of the diet was radically changed from that on which man developed through the ages. In evidence of this may be cited the use of almost chemically pure sugar, whose annual consumption per capita has risen from 8 pounds at the close of the Civil War to the present amount, about 108 pounds. If to this are added refined vegetable oils and milled cereals, considerably more than half of our food intake is accounted for with products that contain scarcely any of the mineral elements and vitamins and but a poor representation of the protein in the raw material from which they were derived.

These new food products—new in terms of the ages through which various forms of animal life have acquired food habits—have so convincingly demonstrated their advantages from the standpoint of palatability, culinary adaptability, economy, convenience and esthetic appeal that the nutritionist has been forced to seek new means of supplying the dietary elements that the new food products lack; any attempt to make available the raw products from which they came would be considered a step backward. It is in this connection that the whole vitamin story has developed.

Nutritive values are retained in canning.

The vitamin alphabet has reached the letter G;

in addition there are subdivisions, such as B_1 and B_2. It is impossible for each individual to learn which foods are best for each of the vitamins. Even if this were feasible it would not solve the consumer's dilemma, for numerous other dietary constituents are just as important as vitamins. This statement is based in part on discoveries even more recent than the discovery of vitamins.

Get vitamins from the garden and orchard rather than from the drug counter.

This does not mean, however, that one needs to be in any danger whatever of not securing an adequate supply of each of the vitamins or of the various other dietary essentials. It is only necessary to follow a few simple rules. Indulge generously in milk, eggs, vegetables and fruits. Almost as important as well balanced and generous proportions of these classes of foods is a reasonably wide variety of vegetables and of fruits, since even closely related products may differ considerably. Cabbage, head lettuce, spinach and turnip greens are all leafy vegetables; but cabbage and head lettuce supply little vitamin A, while spinach and turnip greens are among the richest sources of vitamin A. In this case, the difference is ascribed to the fact that cabbage and head lettuce do not receive the benefit of the sun's rays because of the compactness of the head.

Grapefruit and prunes are tree fruits grown in similar sunny regions, but while the prune is rich in vitamin A, grapefruit is almost devoid of it. Curiously enough, prunes are just as nearly devoid of vitamin C, while grapefruit ranks at the top in this respect. Closely related products may be as strikingly different in other ways—in their content of calcium, iron, copper, iodine, manganese and amino acids, elements of diet which are just as essential as are the vitamins.

It is thus quite clear why one should not only eat generously of dairy, vegetable and fruit products but also use a considerable variety of each of these so-called protective foods. While dairy products are produced the year round, nature does not supply us continuously with vegetables and fruits. Formerly, vegetables and fruits were available in a freshly grown state only for a brief period each year and often only in the locality in which they grew. This explains the former demand for spring tonics and affords an explanation for the craving for greens in springtime on the part of all animals. Food preservation and improved distribution methods, however, have come to the rescue. In this country the canning industry plays a big rôle in this connection. So far as the nutrients supplied by vegetables and fruits are concerned, canning, storage and the transportation of vegetables and fruits from tropical to winter climates have given us perpetual summer. They have made available freshly grown vegetables and fruits at all times and in all places.

It was known even before vitamin discovery that succulent growing vegetables and fruits have food values that are not possessed by the same foods when they are mature or dry. The reasons for this are now becoming clear. For example, a green growing pea or bean supplies vitamins A and C in generous quantities, whereas the ripe pea and bean are fairly low in vitamin A and practically worthless as a source of vitamin C. It has been demonstrated that the special values of succulent vegetables and fruits are retained and stabilized in canning. It is therefore strictly proper, nutritionally speaking, to say that canning supplies a wide variety of freshly grown vegetables and fruits throughout the year for every locality.

Lavoisier is generally given credit for the discovery that food undergoes combustion in the body; that is, it combines with oxygen in a manner comparable to the burning of organic matter in the air. Soon after his demonstration of this principle, it was shown that providing fuel is the only function of the fats and carbohydrates, while the proteins supply in addition the building material for muscular structure. A few decades ago it was recognized that there are many and various proteins constructed from approximately twenty amino acids—each a necessity in the diet—in a manner comparable to the forming of the words in a dictionary from twenty-six letters. Chemical methods for identifying and correlating the major inorganic or mineral elements in the food and in the body were available quite early. More recent than the discovery of the vitamins, however, is the knowledge that minute quantities of copper (toxic in quite small amounts) and manganese play a vital rôle in food, and that extremely

small amounts of iodine, lacking in large sections of the United States, prevent goiter.

No one knows how all these mineral elements function any more than how all the vitamins function. It is quite possible by properly arranged experiments, particularly in the case of the elements that function in minute quantities, to surround some of these mineral elements with the same atmosphere of magic and mystery as has been evolved in the case of some of the vitamins. Such effects are produced only when gross deficiency of a vitamin or of some other dietary essential occurs. Slight deficiencies cause impaired general health that is not specific for any one factor.

On first discovery of the vitamins, attention was given to the effect of gross deficiencies. Thus vitamin A became associated with growth and is still designated by some as the growth-producing vitamin. If young rats are given a diet devoid of vitamin A, their growth slows up and in three or four weeks it ceases. A decline in weight occurs, followed by death. Many of the animals acquire an affliction of the eyes. It is claimed that this is a secondary infection resulting from a general run-down condition or from poor health. Vitamin A is thus designated also the anti-ophthalmic vitamin. The night blindness in lumber camps and certain arctic regions, where the diet is limited, is frequently called to mind in this connection. In experimental rats with little vitamin A in the diet, pus is apt to form in the sinuses and ears and along the respiratory tract. Hence to vitamin A are attributed anti-infective and cold preventive properties. The fallacy of this conclusion will be discussed later.

If vitamin B is missing in the diet, paralysis results from the effect on certain nerves. This condition is known as polyneuritis in experimental animals, while a similar disease in human beings is called beriberi. The latter is not the result of vitamin B deficiency alone but arises from such a deficiency accompanied by a poor diet unbalanced in other respects—a combination of conditions that is common in oriental regions in which polished rice constitutes a large proportion of the diet. Under these conditions of serious vitamin B deficiency and generally unbalanced diet, the appetite and the general tonicity of the digestive tract are seriously lowered. In such cases administration of vitamin B alone is not nearly as effective as correction of the general diet with the proper wholesome foods. To say that vitamin B has peculiar and specific relations to the appetite and the tonicity of the digestive tract is true only in certain experimental conditions in which it is the sole deficiency—a situation rarely, if ever, encountered except experimentally.

When guinea-pigs receive a diet lacking in vitamin C, they invariably become afflicted with scurvy and die within about two to four weeks. Thus, vitamin C became known as the anti-scorbutic vitamin. Scurvy was early known in connection with long sea voyages and exploring expeditions, and it was also present in armies. The ration of the American soldier in the World War had canned tomato to prevent this, and Admiral Byrd in his antarctic expedition took similar precautions, with the result that scurvy was avoided. Slight deficiencies that do not give rise to the usual symptoms of scurvy are now recognized in experimental animals as the cause of disorganized tooth structure. No doubt a similar relationship exists in human teeth, but the symptoms are indistinguishable from those resulting from general malnutrition.

It is known that vitamin D is definitely involved in the utilization of calcium and phosphorus; even with an abundance of both these elements in the diet, normal tooth and bone development is impossible without vitamin D. In young children, rickets develops and is frequently the cause of bow legs. Cod liver oil has long been recognized as a remedy, and now it is known that certain ultraviolet rays of a given length, produced either by the sun or artificially and directed on the body itself or on the food to be eaten, have the same effect. After the age of about 18 months, when a sufficiently varied diet is eaten, the child shows little evidence of a shortage in vitamin D. This is clear when it is realized that vitamin D, in small amounts, is generally present in all vegetation growing in the sunlight, and that sea foods are exceptionally rich in it. As a result of a comprehensive investigation, the United States Department of Agri-

The tropics provide fruits and vegetables all year round.

culture has stated: "It is quite apparent that there is more vitamin D in the canned salmon sold in this country than in the cod liver oil used for both human and animal feeding."

Vitamin E is so generally found in foods that a deficiency of this vitamin in human beings is not so far identified with any malady. In experimental animals a gross deficiency affects the reproductive organs in both male and female. Vitamin E has thus been designated the antisterility vitamin. This nomenclature is unfortunate because it is known that reproduction is not normal with any dietary deficiency. A moderate insufficiency of vitamin A may permit growth and apparent health but does not allow reproduction. A slight deficiency of vitamin B may permit the birth of young but not enough milk production to rear them.

Curiously enough, there is now no vitamin F, although vitamin G is recognized. This does not mean that a vitamin has disappeared. On the contrary, the discovery of another is responsible. The vitamin formerly called B has closely associated with it another vitamin. For a while it was customary to designate the two as F and G. In England it is now customary to designate them B_1 and B_2, but in the United States the one first designated F is now vitamin B. This vitamin, as previously stated, is closely identified with polyneuritis and beriberi. The vitamin closely associated with it is called vitamin G, or the antipellagric vitamin, because its absence apparently constitutes one major deficiency of diet that results in pellagra.

Facts concerning vitamins A, B, C, D, E and G have been definitely established. In addition, it is believed—and in the case of vitamins A and B there is definite evidence—that each of the vitamins may consist of several similar and closely related substances.

What Is a Vitamin?

In reality, just what are these vitamins? They are definite substances in the same sense that table salt, sugar and starch are definite substances. Sugar is somewhat more complex than table salt and there are several undetermined features about its structure. Starch is still more complex, yet the nature of these complexities is fairly well established by the chemist. The vitamins are not simple compounds, and yet they are probably much more simple than many other substances with which the chemist must deal; they are more complex than sugar but probably less so than starch.

In the case of vitamins A and D, it is quite certain with what substances science has to deal. The yellow pigment in carrots, yellow corn, sweet potatoes and practically all green plant material, though hidden in the latter by the green chlorophyll, is now regarded as one form of vitamin A. Ergosterol, found in yeast and in ergot, a sort of smut or fungus which grows on rye, is a modified form of vitamin D. If ergosterol is exposed to ultraviolet rays, a portion of it is said to become activated, and this activated form is vitamin D. Windaus of Germany, it has recently been reported, has been able to separate the activated ergosterol from the inactive in the form of pure crystals.

The relationship of carotene and ergosterol to vitamins A and D, respectively, may be illustrated by a simple puzzle with matches. Sixteen matches may be arranged to form five equal touching squares, each match forming the side of a square. Now by moving only two matches into a different position, the same number of matches may be made to form only four squares of the same size, each match still forming one side of a square. Carotene and ergosterol are each made up of a certain number of atoms in a definite relation to one another; by a change in the relative position of the atoms they apparently become vitamins A and D, respectively.

More recently it has been reported that Windaus has also succeeded in crystallizing vitamin B and that a Norwegian chemist named Rygh has a crystallized vitamin C. If these reports are true, the isolation of these vitamins in pure form is assured and great possibilities are offered in the elucidation of their nature and function.

Complexity May Lead to Perplexity

An attempt has been made to make this discussion as simple as possible. In spite of that, it is evident how easy it is to become involved in many complex questions. While vitamin A has been designated the growth vitamin, it has been shown that even such elements as copper, iodine and manganese in minute quantities, and iron and calcium in larger quantities must be present in food to prevent stunting of growth or to maintain good health in adults. While vitamin D is called the antirachitic vitamin, insufficient calcium or phosphorus, or an improper balance of the two under certain conditions, may be the cause of rickets. Vitamin C has been designated the antiscorbutic vitamin. Although no scurvy exists in this country, it is now known that a deficiency in vitamin C so slight as never to result in scurvy may, however, result in disorganized tooth structure.

Only the expert can be informed in even a limited fashion on all phases of this complex question of essential components of the diet. Yet no one needs to fear being inadequately supplied with all the necessary elements of a complete diet. Eggs, milk, succulent vegetables and fruits have been designated the protective foods. Remarkable achievements have resulted from their generous use. Persons suffering from so-called degenerative disease, such as occasional unexplained headache, gastro-intestinal disease, diabetes, arteriosclerosis, myocardial degeneration or arthritis, have experienced

decided improvement on a diet consisting of milk and fruit at each meal and two vegetables, besides lettuce, at lunch and dinner. Such a diet makes for sound tooth structure and has been shown to correct dental caries in those whose diet has been at fault.

Through scientific preservation and more general distribution of vegetables and fruits, such a diet is made accessible to all. It has been demonstrated that commercial canning itself makes possible a constant and abundant supply of all those nutritive properties associated with freshly harvested vegetables and fruits. In extensive experiments, animals have been fed on diets consisting wholly of commercially canned foods, for generation after generation, and they thrived on such canned food, not only as well as may be considered average but in an optimum condition. The animals used, for generation after generation, have never been in the direct rays of the sun. The room in which they were kept has only normal window space. Ultraviolet radiation, either of the food or of the animals, has never been employed. No cod liver oil, no raw vegetable or fruit juice as antiscorbutic, no vitamin preparation or other proprietary product was ever used. Nothing but canned foods purchased daily from retail stores was ever fed. The results are on record in scientific literature. No peculiar characteristic is attached to canned foods because of these experiments. The outcome would have been the same had similar foods, prepared in some other established manner, been used instead.

The Fallacies of the Overzealous

Although vegetables and fruits are particularly valuable in supplying mineral salts, vitamins and bulk, or indigestible residue of proper texture, at present great stress is laid on them as a source of vitamins. It has been shown definitely, at least in the case of vitamins A, C and G, that several times the quantity necessary for apparent normal growth and reasonable good health is necessary for optimum and buoyant health. This abundance can be guaranteed in a practical way only by the use of a sufficient amount of an adequate variety of the so-called protective foods. The consuming public is not greatly concerned with the various diseases resulting from gross deficiencies. Physicians can recognize these and prescribe the diet to correct them. If a person happens to be in only fair health but has no definite or serious affliction, no diagnostician can tell whether he needs more of one vitamin or another or of some other dietary necessity. Exuberant health, from the dietary standpoint, is attained with the greatest certainty by a dependence on substantial foods such as eggs, milk and a variety of vegetables and fruits.

Many a person has undoubtedly been injured by an overzealous desire to get a sufficient quantity of this or of that vitamin. Bran may contain a certain vitamin, but evidence of its injurious effect because of its excessive, irritating roughage is available in every clinic. Many have become too vitamin-conscious. The salutary effect of the food one eats is seriously minimized unless the food is eaten in a carefree manner and with relish and enjoyment. The 200 and more items of canned foods and the abundant market products available for each meal may afford a source of keen enjoyment by their relief from monotony and may also supply a nutritionally correct diet.

Caution Is the Keynote of Safety

When experts disagree it is a good time for the layman to be cautious. Lack of agreement is all too prevalent in the matter of the efficacy of the various vitamin preparations offered by manufacturers and in their desirability as factors in the human dietary. Great differences in opinion exist even as to the nature of the specific function of the vitamins and particularly as to the symptoms in man's health resulting from their deficiency in his diet. Suffice it to cite one illustration as to how this may come about: Until recently, all the evidence on the anti-infective and cold-preventive properties of vitamin A was based on experiments with rats. In the *Journal of Nutrition* for January, 1932, occur the following statements: "The upper respiratory tract, nasal cavities and middle ear were free from suppuration in all of the deficient animals . . . it appears that withdrawal of vitamin A from the monkey does not develop a characteristic susceptibility toward infections of the upper respiratory tract."

Animal experimentation has established certain dietary principles that are fundamental. It is obvious that appreciable deficiencies of a single food element possible with experimental animals are out of the question in any human dietary. Granted such a possibility, one might well expect a considerable difference in detail of the resulting symptoms. While the investigator may content himself in citing the animal symptoms as an indication of what may be expected in man, the vendor of a vitamin preparation is liable to feature the symptoms in the promotion of his commodities. The befuddled consumer will do well to heed the admonition of an authority of the Bureau of Chemistry of the United States Department of Agriculture to get his vitamins from the garden and orchard rather than from the drug counter.

"In looking in that glass, I noticed that my face had two separate and distinct images."

LINCOLN and the DOCTORS

By MILTON H. SHUTES

CHAPTER VII

SOME of the illnesses in the Lincoln family during the fifties might be found in the old record books of the Diller Drug Store, held in Springfield, secure and unobtainable. But a peek at them some years ago by Jesse Weik revealed the following items purchased by Lincoln in 1852:

Aug.	7	To prescription	.15
"	11	" cal. powder	.10
"	14	" Pennyroyal	.10
"	23	" bot. carminative	.25
"	30	" bot. carminative	.30

From this we may conclude that the children were suffering from colic and were treated for it in the wrong, old-fashioned way.

However, the genial Isaac Diller still retains one of the old day-books of the drug store including the years 1857, 1858 and 1859, which he kindly permitted me to scrutinize. On Oct. 8, 1857, the youngest child was 4½ years old, but Lincoln was still purchasing a bottle of carminative for 25 cents. On October 26, the children needed syrup of ipecac for a cough and chest cold and another bottle in November. During 1858, his busy year of politics, there is only one little item found:

242—Ab. Lincoln
To adhesive plaster ..... .10

In 1859, "A. Lincoln" is found thirteen times—often for drug store sundries, but on St. Valentine's Day somebody was suffering:

242—A. Lincoln
To bot. cast. oil ..... .25

And then the usual sequel to an "upset stomach" developed—the ubiquitous cold! Four days later occurred the following entry:

242—A. Lincoln
To Brown's mixture ..... .25
Cough candy ..... .10

On May 21, 1859, he bought a tonic—a bottle of Allen's Restorative for $1.50 and on Tuesday, September 6, there is an interesting entry:

242—A. Lincoln
To bot. Dead Shot..... .25
bot. Lub. Extract..... 1.00
pt. Spt. camphor..... .35
1 oz. glycerine..... .25

The last item was new at that time and was used as a sweet lubricant for sore throat and huskiness of the voice. The spirits of camphor, as now, was rubbed on the chest. Lubin's Extract was a perfume, and the bottle of Dead Shot was a favorite "sure cure" for an unpopular house guest that respected neither prominence of person nor the homes on the best streets—Cimex lectularius.

On Saturday, September 10, Mr. Lincoln was again back at Diller's for another household friend—a popular cathartic of the times:

242—A. Lincoln
To box Wright's pills..... .25

But of peculiar interest are two entries in 1859 for June 3 and 13:

242—A. Lincoln
To bot. brandy..... 2.00
242—A. Lincoln
To bot. brandy..... 2.00

This was not an uncommon item of drug store purchase by Lincoln in the fifties, but it is the only record at Diller's for these three years. The purchase of two bottles in ten days is difficult and unnecessary to explain. We know of Lincoln's personal attitude toward liquor and that on Feb. 22, 1842, in a temperance address before the Washington Society, he said: "Physicians prescribe it in this, that, and the other disease," and "the victims of it are to be pitied and compassionated just as the heirs of consumption and other hereditary diseases."

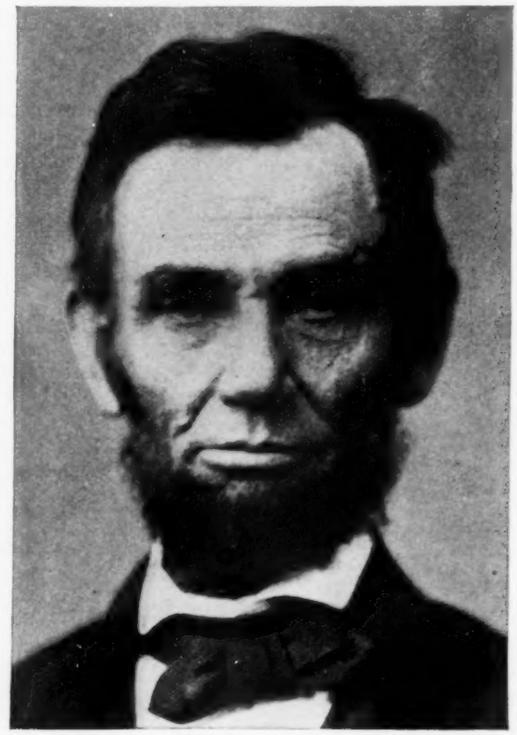
He said many other things against intemperance. He had early acquired a strong prejudice against the cup with the alcoholic urge. He had seen that cup in action in Spencer County, Ind., and along the Ohio, Mississippi and Sangamon rivers. When 18 years old, his sister Mrs. Aaron Grisby anticipated her first baby. The nearest doctor lived only 2 miles away, but he was objected to because of his inebriety. Yet on Jan. 20, 1828, because Sarah's need was sudden and terrifying, a messenger was dispatched for this doctor, who arrived helplessly intoxicated. Sarah's father-in-law, Reuben Grisby, then hurried the 4 miles to Little Pigeon Creek and across it into Warwick County for Dr. William Davis. The creek was rapidly rising and on Grisby's return with Dr. Davis it was so swollen that they had to cross some 6 miles farther up near Dale, Ind. When they finally reached Sarah, she and her baby were dead. What an impression that tragedy must have made on our sensitive young man. About this time he was reading the columns of a certain Cincinnati weekly devoted to intemperance, which was loaned him by a neighbor William Wood; all this prepared him for the later influence of his New Salem friend, the militant water-drinker Dr. John Allen.

Lincoln "kinder needed" spectacles.

There is an abundance of evidence that Lincoln practiced total abstinence, but the aforementioned list of purchases shows either that Mrs. Lincoln desired the bottles for the ever popular brandy sauces (mincemeat was not made in June) or that they had some medicinal use for it. Possibly Lincoln used it for external purposes, a method which he learned from Mrs. George P. Floyd of Quincy, Ill. After the sixth debate with Douglas at Quincy, Lincoln was utterly exhausted and, as George P. Floyd, proprietor of the Quincy House, relates, he almost collapsed. He was taken by friends to his room in the Quincy House and laid on a lounge. Lincoln expressed the fear that he might have to give up the race, that he was "mighty nigh petered out." Mrs. Floyd came in and, after observing the noted man, suggested a "rum sweat," at which Lincoln protested that he never drank a drop in his life. But after assurance that it was for external use only, he was willing, in his extremity, to take a chance. So he was stripped and seated on a cane-bottomed chair and covered with blankets. Then a pan of New England rum was lighted and placed under the chair. This started a perspiration, after which he was put to bed and the sweating continued under more blankets and with the help of hot ginger tea. The next morning he appeared bright and early and feeling "like a two year old," vociferous with praise for Mrs. Floyd's treatment. Years later, when Mr. Floyd went to the White House on business, Lincoln recognized his name and said: "Why, I have seen you before, sir. I remember you very well. I believe your wife saved my life when I was in Quincy in 1858. Yes, I have taken that rum sweat that she prescribed for me many times and I have prescribed it for some of my friends. It has always been a dead shot."

In 1854 there was sickness in the Lincoln family of sufficient gravity to keep him from a speaking engagement with his friend O. H. Browning of Quincy; they were announced as speakers at the annual meeting of the Illinois State Colonization Society at the First Presbyterian Church of Springfield but only Mr. Browning was present. "On account of illness in his family, Mr. Lincoln was not present," records the Illinois Journal of Jan. 14, 1854.

Perhaps he was out of town with his dog-bitten son Robert, for it was somewhere about this time that Lincoln took him to Terre Haute, Ind., to have the madstone remedy applied. This incident may bring a smile to the reader with his knowledge of the cause and cure of hydrophobia, but it occurred some thirty years before the discoveries of Louis Pasteur, and Lincoln was frightened enough to try almost anything to save his son from the terrifying symptoms of rabies. He explained to Joseph Gillespie that "he found the people in the neighborhood of those stones fully impressed with the belief in their virtues from actual experiment." Even then, it seemed necessary to offer an explanation for his credulity; although he had an orderly, logical mind, he was, by his own confession, influenced by the superstitions of his early life.



There was an apparent deviation of the left eye upward.

During the years as barrister-at-law, Lincoln met many doctors who were involved in litigation of one kind or another and there must have been many legal disputes of definite medical interest, in evidence of which are the three mute witnesses found in the Lincoln and Herndon law library: Dean's "Medical Jurisprudence," Taylor's "A Treatise on Poisons in Relation to Medical Jurisprudence," and "A Synopsis of Practical Surgery."

One lawsuit for malpractice has recently come to light in which Lincoln figured. In the summer of 1856, a Samuel Fleming brought suit in the McLean County Circuit Court against two reputable physicians of Bloomington, Ill., Drs. Eli K. Crothers and Thomas F. Rodgers, complaining that as a result of their mismanagement of his fractured leg, a disabling shortening of that member had occurred. The wife of Dr. Crothers, also a licensed doctor of medicine, was a daughter of a political friend and client of Lincoln. A well-liked nurse who had formerly served the Lincolns was now a nurse in the Crothers family, and Lincoln was assisting her in some property litigation. Moreover, Lincoln was well known in Bloomington; he was a frequent visitor there and had purchased a piece of residence property which, in 1887, was acquired by Dr. Marie L. Crothers, then the widow of Dr. Eli Crothers. The property still remains in the possession of her two daughters.

Naturally, the doctors turned to Abraham Lincoln, who promptly agreed to defend them. The trial, through change of venue and a series of continuances, was transferred to the Logan County Circuit Court in Bloomington and delayed until the fall of 1857. In the meanwhile the defendants made good use of the time. They demonstrated to Lincoln that because of the advanced years of the plaintiff the regeneration of bone in the area of the fracture was slow and scanty, thus greatly increasing the liability to shortening; they instructed him in the physiology of bone repair in the young as compared with that in the aged, using chicken bones as illustrations.

When the suit finally came to trial, Lincoln had forgotten much of the medical terminology, and in lieu thereof employed certain comical expressions and used the prepared chicken bones and other illustrations. With his usual wit and adroitness, he had the jurymen "with him," and closed his argument with an earnest plea that the plaintiff, instead of complaining about a slight unavoidable impairment, should thank his God and his doctors that he had a leg to stand on, as most doctors would have amputated so severely injured a member. A verdict in favor of the doctors was promptly returned, and the whole costs of the trial were placed on the plaintiff.

CHAPTER VIII

IN 1856, Lincoln helped to organize the Republican Party in Illinois and by both necessity and inclination did a great deal of reading. Most of it was in fine print and on poor paper, yet he did this without glasses until the year 1857, when presbyopia overtook him and compelled him to get a pair of reading glasses. These he purchased in a diminutive jewelry shop in Bloomington, Ill., while shop-

ping with Henry C. Whitney, who writes that Lincoln bought his first pair of spectacles for 37½ cents, remarking that he had got to be 48 years old and "kinder needed them." This is some indication that Lincoln was blessed with eyes that were normal from an optical point of view.

But his ability to make his two eyes work together is a different matter and opens up another interesting field of discussion. In order to obtain single, comfortable vision from both eyes, the muscles that control their position and alignment, vertically and horizontally, must attain almost perfect coordination. When there is a latent degree of lagging of one eye, due to an underacting or overacting set of muscles, there usually develop varying degrees of nervous symptoms, such as eyeache, headache, irritability and even mental depression. When the deviation of one eye becomes apparent, symptoms tend to subside and double vision develops.

Herndon said that "the look of gloom and sadness so often noted in the many descriptions of his countenance was more or less accentuated by a peculiarity of one eye, the pupil of which had a tendency to turn or roll slightly toward the upper lid, whereas the other one maintained its normal position, equidistant between the upper and lower lids." This dissimilarity was noted by others. Dr. T. Hall Shastid, writing in *The Nation* for Feb. 20, 1929, states that his father, who was a young physician in Illinois and knew Lincoln well, noted that the left eye turned up at times.

A casual inspection verified by a careful parallel ruling of full-face photographs of Lincoln will demonstrate an apparent deviation of the left eye upward. If this was a true squint, he must have suffered various discomforts from it, and as such, it would prove to be a definite factor in contributing to and precipitating minor attacks of depression. It contributed, with his drooping lids, to give him his pronounced facial expression of sadness and woe. Also, he actually suffered an attack of diplopia (double-vision) on at least one recorded occasion. He related the following incident to Noah Brooks and later to his secretary John Hay and to Frank Carpenter:

> It was just after my election in 1860, when the news had been coming in thick and fast all day and there had been a great "hurrah boys," so that I was well tired out and went home to rest, throwing myself upon a lounge in my chamber. Opposite to where I lay was a bureau with a swinging glass upon it, and in looking in that glass, I saw myself reflected nearly full length; but my face, I noticed, had two separate and distinct images, the tip of the nose of one being about three inches from the tip of the other. I was a little bothered, perhaps startled, and got up and looked in the glass; but the illusion vanished. On lying down again, I saw it a second time, plainer, if possible, than before, and then I noticed that one of the faces was a little paler, say five shades, than the other. I got up, and the thing melted away and I went off and in the excitement of the hour, forgot all about it, nearly, but not quite, for the thing would once in a while come up and give me a little pang as though something uncomfortable had happened. When I went home I told my wife about it and a few days after I tried the experiment again when, sure enough, the thing came back again, but I never succeeded in bringing the ghost back after that though I once tried very industriously to show it to my wife who was worried about it somewhat. She thought it was a "sign" that I was to be elected to a second term of office, and that the paleness of one of the faces was an omen that I should not see life through the last term.

In an address delivered in Portland, Maine, Feb. 12, 1901, Dr. Eratus Eugene Holt referred to Lincoln's optical illusions and pronounced them due to a temporary lack of balance of the external ocular muscles:

> As he lay there upon the couch, every muscle became relaxed, as never before. In this relaxed condition, in a pensive mood . . . all the muscles, that direct, control and keep the two eyes together, were relaxed, the eyes were allowed to separate and each eye saw a separate and distinct image by itself. The relaxation was so complete for the time being that the two eyes were not brought together, as is usual by the action of converging muscles, hence the counterfeit presentment of himself. He would have seen two images of anything else, had he looked for them but he was too startled by the ghostly appearance.

It remained for Dr. S. Mitchell of Hornell, N. Y., in the *Ophthalmic Record* for May, 1914, to make the first recorded observation that Lincoln must have suffered from a left hyperphoria and hypertropia (vertical deviation). He called attention also to the corrugation of his brow and its resulting crow's-feet as one of the common symptoms of muscle unbalance. This article called forth further comments from Dr. E. E. Holt in the same magazine for August.

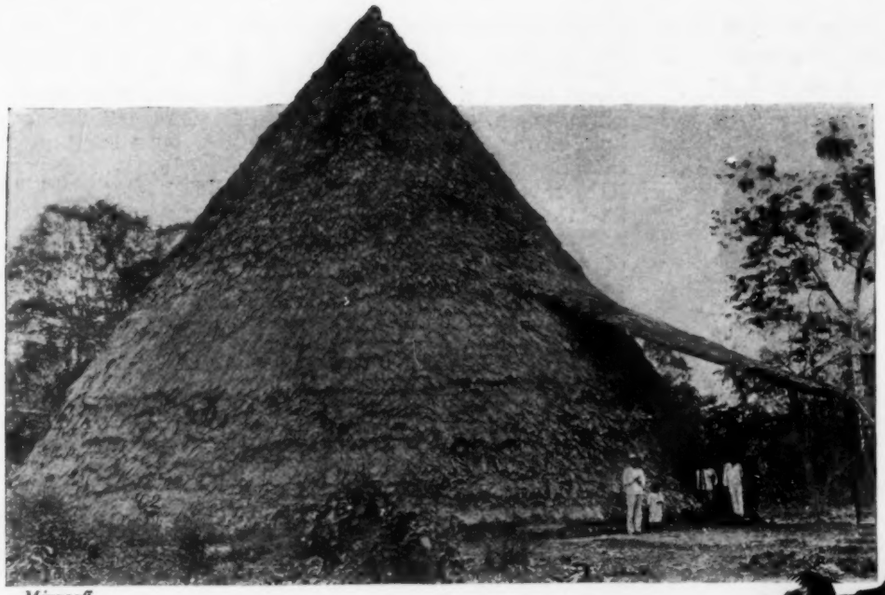
In 1926, Dr. Edward E. Maxey read a paper on this subject. The double image episode he also attributed to a hyperphoria or cyclophoria of Lincoln's external eye muscles, making that condition explain much of his physical laziness in youth and manhood and his fatigue during the Presidency, and claiming that Lincoln's habit of lounging was an instinctive search for a less tiring position for his eyes.

Dr. Shastid, in his article in *The Nation* previously mentioned, writes interestingly of Lincoln's hyperphoria and also suggests a further defect—color blindness. "To my grandmother, who once wished to show him the flowers in her front yard, he said, 'I will look at your flowers, mother, but I really cannot understand what people see to admire in such things. I am somehow deficient.'" It was Lincoln's habit to consider himself deficient in many ways, but it is probable that he meant esthetically and not physiologically deficient.

Now there is such a thing as an apparent or a simulated squint. Paintings and portraits often show an eye that apparently turns in or out or up, the impression depending on an abnormal relative position of the iris and lid margins,

(Continued on page 564)

Unique Houses



Mirzaoff

A Pyramid Indian Cottage Built by Natives of Costa Rica.

International Newsreel

Native Church in New Britain Islands, Australia.

International Newsreel

A house built near the River Jordan by nomads from Palestine, above.

Ewing Galloway

An Irish cottage with thatched roof.

in

Far-Away Countries

Cottages of the Bontac Tribes, Philippine Islands.

Native House of the Lepanto Igorots in the Philippine Islands.

A Bukidnon house in the Island of Negros, in the Philippines, above.

Cottage of the Benguet Igorot showing European influence in the Philippines.

Vacations for Children

By H. G. BULL

Cy La Tour

VACATIONS for children afford a pleasant subject for contemplation. The objects to be sought are fourfold, relating to health, pleasure, the background of experience and the broadening of the child's horizon. Any real vacation, even though of only a few days' duration, can be made to include some measure of each of these features. Whether the child emerges in perfect health on the breathlessly awaited last day of school or whether he is one of the many whom fatigue or a cross disposition stamps as a tired child, the summer vacation offers the great opportunity of the whole year for sustaining robust health or for improving the condition of the less fortunate and fortifying them against the fall and winter.

In order to accomplish this pleasantly and successfully, one must fall back on four old standbys: rest, food, fresh air and sunshine. Excluding, of course, such defects as diseased tonsils and sinus infections, the usual cause of loss of weight is lack of rest. All play and no rest make Jack a skinny boy. This difficulty can be overcome by adding to the usual quota of sleep a short nap after the midday meal. Children will usually insist—and they themselves often believe—that they cannot sleep in the daytime. They probably cannot if they will not, but they usually can if they will. If one offers one's son a coveted model airplane at the end of the summer if he'll take naps, and then tells him how to take them, in nine instances out of ten the plan will be a great success. One formula that works well is this: Turn the face away from the light, keep the eyes closed, and keep thinking over and over "I'm going to sleep, I'm going to sleep, I'm going to sleep."

The food for the vacationist may be summarized as three good meals a day. Milk is a great old ally, and for those who do not like it much there are several disguises on the market in the form of chocolate drinks that are tempting and palatable.

Fresh air may be had throughout the twenty-four hours by resorting to sleeping-porches or screened tents. Sunshine should be freely indulged in, but one should not overdo the matter, for a real case of sunstroke or of heat exhaustion will more than counterbalance all the summer's gain.

The second way in which vacations justify themselves—and to children this is "the whole show"—is in providing good times. Every one who is responsible for the arrival of children in the home owes those children a happy childhood, and any youth who can look back from the vantage-point of maturity and recall a childhood that was not happy can only conclude that in his case the stork perched on the wrong chimney. Children have such a propensity for enjoying life that it sometimes taxes ingenuity to provide the best outlets in which to direct all their superabundant energy and enthusiasm. Many children do most of this themselves, and whenever a child gets an idea of his own, such as raising chickens or breeding rabbits or building something, he should be encouraged and helped in making the project a success. Perhaps the result may look rather odd to older and imagination-dimmed eyes, but the fact remains that a 6-foot boat of one's own make that will float with a passenger in it and that one can paint blue and white, and christen "The Water Lily" in red letters, is a far grander thing than all the Leviathans afloat.

Summer camps are a proper safety-valve for many children. There are camps and camps, good, poor and indifferent, and before sending a child to one, the parent should go and see it and should talk in detail with the director as

to food, water, beds and activities. He can talk to advantage also with other children who have been there, and if he finds that a child does not want to return he has heard a pretty eloquent commentary and should look elsewhere. Certain camps are designed for children in special age groups, and sometimes the mistake is made of sending a little fellow to a camp intended for boys considerably older. Then it happens that the boy is either spoiled or, if he happens to be shy and dependent, may become completely subdued and wretched. Furthermore, such an experience may spoil a child for the enjoyment he might derive from it at a later and more suitable age. Before a child is sent to any summer camp he should be immunized against typhoid.

M. Greenan

One does not need to go far or to incur great expense to provide smaller children with new experiences that seem to them great larks. A few days at a farm during haying, or a week-end trip to some nearby pond where the children can help to set up camp and to prepare camp meals, where one can rent a boat for fishing and for learning to row, and where one can pitch a tent and sleep on the ground are experiences that give small children a great thrill. They come home radiant, with a feeling of importance that may be a great factor in forestalling the future inferiority complexes that are already famous for making failures of so many persons. The state parks offer fine camp sites for such adventures, but they are not liable to afford much privacy; with a little exploring and some imagination, suitable places can be found almost anywhere.

Families having several children should send them on their vacation in combinations or groups. This is not only because the older and the younger children have different interests but because it is beneficial to separate them for a while. They return bringing to one another new interests, and it is often amusing to watch them discovering pleasing qualities in one another that had somehow been overlooked before.

Lynwood M. Chace

Gaining new experiences is found often in contrast: for the city child a taste of the country; for the Nantucketer a visit to the Berkshires; for the mountaineer a trip to the seashore; and for all of them the ferry and the sailboat, the hayrig, the subway or the sand-dunes, as the case may require. In fact, these vacations might well be organized on a grand scale as a Children Exchange, with the Seaside Smiths trading offspring for a fortnight with the Mountaintop Mulligans.

Extending horizons, the fourth point, is closely related to new experiences, but there is a difference that applies particularly to older children. It has always been a puzzle to me to understand why there are any children who do not like geography, for it ought to be the most interesting subject in the curriculum if it is properly presented. Are we forced to conclude that it is badly taught or is it introduced at the wrong age level? However that may be, vacations can be made a great means of stimulating interest in the world and of learning geography at first hand. By going to new places, and especially to places that are different, one's outlook is not only broadened but diversified. The child begins to learn that the universe of which he is the center actually extends beyond the home wood-lot, and that people, though different in other places, are all interesting and offer many things for him to learn. All unconsciously this child is learning the great lessons of tolerance and broad-mindedness. A trip to Nantucket, to Canada, down the river to Montreal, to Cape Cod, to Niagara or to Bermuda has much of interest to teach a child and can be the means of raising him in the estimation of his fellows in school if he can relate first-hand experiences that are new to them. The older the child the farther he should go. The little ones should visit near by and the older ones abroad.

Aside from these four points there are others that might be touched on to good advantage.

One is the opportunity that vacations offer to teach many new things or to enlarge a child's knowledge along certain lines. There is, for example, the subject of nature study. Although there ought to be few persons nowadays who do not have a fundamental knowledge of this subject, since it has for so long been included in nearly all school curriculums, it is surprising to note how many persons there are for whom it apparently does not hold any interest whatever. For such as these it is naturally difficult to stimulate a child's study, and yet on the other hand it ought to be possible for them to learn along with the children, who have probably been given a good start already by their biology teacher. So many interesting nature books are being published all the time that there is seldom any difficulty in finding a good guide to the local flowers, birds, bugs and geological formations no matter where one may happen to go. In the excellent Burgess books, the subject is made easy and attractive for all ages. The texts are interesting and truthful, the pictures pleasing and accurate, and the author covers exactly the things one is likely to run across and wonder about. In most places that hold special interest, like Cape Cod, Nantucket or Bermuda, one can find in the local stores good books dealing with local history and biology. These should be sought out on the first day of the visit instead of on the last; one will then have no regrets concerning opportunities lost through ignorance.

If a child is interested in flowers it will be fun to collect specimens and press them in a book until he gets home and can mount them. Since pressed flowers fade so soon, it is an excellent idea to make a tiny sketch of a single flower at the time it is picked and fill in with the right shades in water-color. Later this is mounted alongside the flower itself. If the child's interest runs to bugs, moths or butterflies, he should have a collecting bottle and some pins and boxes.

A pair of field glasses and a small box camera with a universal lens and focus are useful articles for a child to take along. In all summer places one finds a good supply of artist's materials, and a child may get much pleasure from trying his luck on a small pad of water-color or pastel paper. Accidents occasionally happen in which the result is really pleasing, and it is a great satisfaction to the young artist to bring home such a souvenir for his room. Such occupations as these have the great additional advantage that a child thus engaged makes fewer demands on the parent than one who has nothing to do.

In quite another way, vacations may be educational in providing a child with some additional training in being a gracious host. In his own home or camp, or in a temporary one at a distance he may have guests for an afternoon, over night or for a week-end and thus learn many of these amenities of civilization. If a child and his guests learn nothing more than how to make a good campfire and cook chops over a bed of coals, the time has been well employed.

Many advantages are to be gained from having a summer home in the country that is yet near enough to town to make the daily trips to business a pleasure rather than a hardship. There are places close to many towns and cities where one can live in the country during the summer with no sacrifice to business or professional interest. Such an arrangement has many obvious advantages in the pleasure and the physical and spiritual benefits that all the members of the family derive from a life in the quiet countryside. Housekeeping may be reduced to a simpler and easier scale, living is less expensive, and one needs to put fewer "don'ts" into the day's dealings. It often happens that the town house can be rented for the summer; this may in a few seasons cancel the obligations incurred in obtaining the country place.

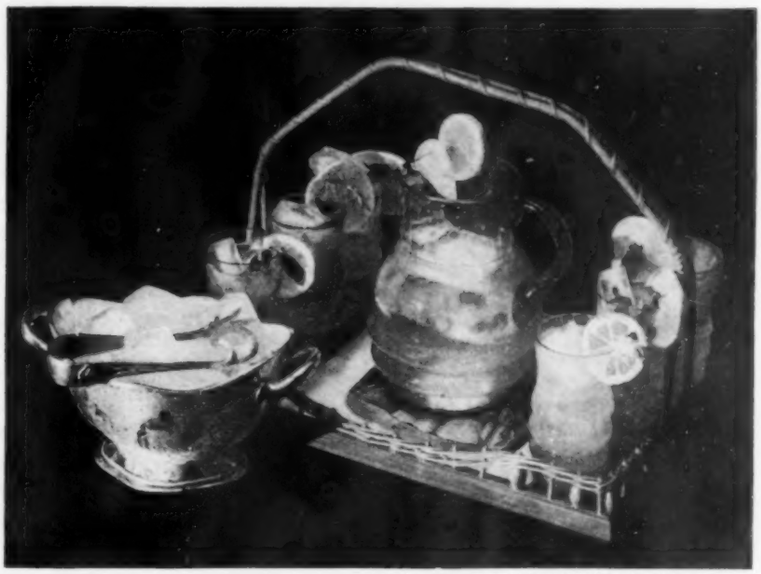
In conclusion, one thing should not be overlooked—life from day to day, like meals that lack variety, may get to be quite monotonous; children do not differ from adults in that they need an occasional change. Nothing freshens them up so much as new scenes, new activities, new contacts and new acquaintances; it is in these fresh experiences, with the large factor of rest added, that the essence of all vacations lies.

FOODS --
Their Selection and Preparation

II. BEVERAGES

By

E. M. Geraghty



Courtesy of General Electric Company.

NONALCOHOLIC beverages have been used from earliest days, first for their stimulating qualities as a part of a meal, and later, in addition to this use, they have come to take a prominent part in our plans for hospitality. "Teas" offer an excellent opportunity to gather friends together and to compliment a prominent guest.

Regarding the origin of these stimulating infusions, it is of interest to note that, although this process of using the extracted flavor of substances of vegetable growth has been developed by people from widely separated areas, with living customs entirely different and at different times of racial movement, they all chose much the same medium for distilling purposes. The one principle commonly found in these products is the alkaloid, a nitrogenous substance that has stimulating properties. Tea, coffee and cocoa contain a volatile oil, from which odor and taste are derived, and some astringent principle related to tannin.

In any discussion of beverages the types to be considered are (1) stimulating, (2) nutritious and (3) refreshing. A stimulating beverage may be nutritious and also refreshing, and other points of overlapping of terminology may be noted but, speaking in a broad sense, tea, coffee, chocolate and cocoa are of the stimulating type; fruit juices and milk beverages are classed as nutritious, and fruitades and carbonated beverages as refreshing.

The principal caffeine beverage is coffee. Various preparations containing caffeine are used as flavors with carbonated waters.

The principal constituents of coffee are caffeine, caffeol (a volatile oil developed in the roasting of coffee, to which the odor and flavor are due), caffeic acid, tannic acid and colloid extractive matter. Caffeine is an alkaloid of chemical composition similar to the purine bodies that constitute a large portion of the extractives of meat. Coffee is obtained from the coffee berry, which develops on a tree of which there are several species in various tropical countries. The coffee tree is native to southern Abyssinia and was cultivated long ago in Arabia and the East Indies.

The Abyssinians mixed the pulverized roasted beans with grease, molded this into balls and carried it as their only food when going on warring raids. The name comes from the Turkish pronunciation "Kahveh" of the Arabian word "Gahwah," signifying an infusion of the bean. The plant is said to be native also to southern India, Liberia, Costa Rica and to various localities in South America, especially Brazil.

There are a great many varieties of coffee trees, all of which are evergreen. To facilitate picking of the berries, the trees are pruned so as not to reach a height of more than 6 feet. The trees bear when about 4 years old and continue producing for more than twenty years. Most of the coffee used is of varieties of the Arabian coffee plant, ranging from the small roundish Mocha to the big Marogogipi bean. Other species coming into prominence now are the Liberian, Congo and Sierra Leone. The Liberian is cultivated extensively in Brazil. The berries should be picked when just fully ripe. If they are picked before, the flavor is not good, and if left until they are overripe, many of the berries fall off and become spoiled. The annual consumption of coffee in the United States is

about 1,300,000,000 pounds. About 60 per cent of this comes from Brazil, about 20 per cent from other parts of South America, and from 10 to 14 per cent from Central America. Of the remaining minor sources the most important are the Dutch East Indies, Mexico and the West Indies.

The best known varieties are described in the following list:

Mocha comes from Yemen, a small district in Arabia. The superior quality of this coffee is said to be influenced by the dryness of the climate, the character of the soil and the method of harvesting. The best grades are small, hard and round, uniform in size, olive green when new and yellowish when older. When the coffee is freshly roasted the aroma is delicious. The infusion is creamy, rich, rather heavy, slightly acid and quite fragrant. It is almost impossible to secure the better grades of real Mocha coffee in the United States, as most of the supply from the Yemen district goes to Egypt and Turkey.

Java coffee comes next in point of popularity and scope of acquaintance. This coffee comes from Sumatra, Celebes and Bali. The coffee is high priced but not any more desirable than the best South American beans. The Java beans are large and yellowish brown.

Bogota coffee comes from Colombia. The choice grades Medellin and Manizale, are among the world's best coffees.

Bucaramanga coffee also comes from Colombia.

Maracaibo coffee comes from Venezuela. This bean is large, round and deep yellow. There are five grades, of which Cucuta and Merida are the best.

Rio coffee comes from Rio de Janeiro, is heavy and pungent, with a bitter taste. These coffees are used as "fillers" with more delicate varieties.

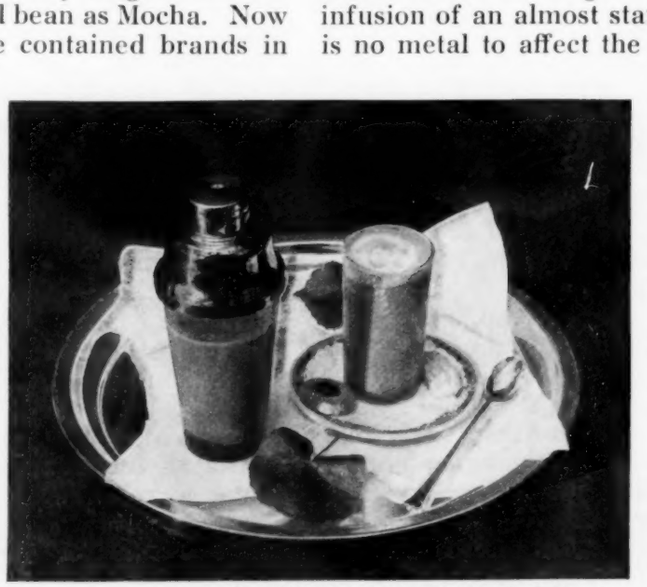
Santos comes from San Paula, is milder than Rio and rather smooth.

Formerly there was much misbranding and "filling" of coffee. Almost any large bean was sold as Java and any small bean as Mocha. Now the labels must name the contained brands in the order of proportion so that on reading the labels, one may know what one is purchasing. Coffee tastes vary so much that it would be difficult to specify a blend that would suit all tastes. Generally speaking, it is good purchasing policy to test trade-marked nationally distributed varieties until a brand is found that gives the brew desired for all purposes, and then to purchase only that brand. Local blenders and distributors may vary the mixture so that it is not uniform. Furthermore, the national distributors usually have better facilities for selection, because of their large orders, and for control of curing, roasting and speedy delivery.

Coffee should always be as fresh as possible and, whenever practicable, the coffee should be purchased in the bean and then ground just before using. Coffee purchased already ground is the most liable to be adulterated with chicory, peas or beans. There are three degrees of fineness in ground coffee: medium (for boiled coffee), fine (for urn use) and pulverized (for "Turkish" coffee). "Instant" coffee is made by evaporating the water from a strong coffee extract. This powder is then mixed with boiling water, and the beverage is ready to use.

Probably no other item on the menu contributes more to the enjoyment—or to the lack of enjoyment—of a meal than coffee. Yet in how many places is really good coffee served? Thousands of dollars are spent yearly in advertising various brands of coffee, but selling is a small part of the job; the big part is to teach the public how to make a good beverage from the carefully chosen product.

The urn method used in hotels, hospitals and similar institutions is simple and will not be discussed here. The methods of coffee making that are of interest to the housewife are boiling, percolating and the drip method. It is my personal opinion that the method used should be determined by the exact kind of infusion desired. Boiled coffee, when made according to the generally accepted rules, is an infusion having "body" and richness as well as clearness and delicacy of flavor. Percolated coffee is clear, lacks richness and body, and varies in delicacy of flavor according to the length of time its has been percolating and the character of the metal with which it has come in contact. Drip coffee, when made in a glass machine, is a clear infusion of an almost standard delicacy. There is no metal to affect the flavor; the water does not come in contact with the coffee at too low a temperature, and the coffee does not remain in the solution too long. For those who appreciate clarity and delicacy and do not desire the richness and body of boiled coffee, this method will give satisfying results.



Courtesy of General Electric Company.

There are certain names used to designate coffee which may be explained by the following definitions:

Café a la crème is strong black coffee to which plain or whipped cream has been added.

Café au lait is really French coffee with about an equal proportion of hot milk.

Café noir is strong clear coffee.

Creole or New Orleans coffee is made by passing small quantities of boiling water over coffee grounds at frequent intervals. This coffee is unusually strong and heavy.

Dutch coffee is prepared by a special process starting with cold water and finely ground coffee. The filtration process lasts three or four hours, and the resulting beverage is very strong.

French coffee has a sweet, thin flavor resulting in part from the addition of chicory and of some sugar during the roasting. It is usually percolated or made by the drip method.

Russian coffee is another strong black coffee.

Turkish coffee is a peculiar thick sweet drink. It is usually made by cooking the coffee in a thin sugar syrup for a minute or two and then serving it at once, unstrained.

But whatever brand of coffee is used, whatever method is preferred for the distilling process, and however one wishes to serve the resultant beverage, there are certain rules that always make for good results:

1. Be sure to keep dry coffee in a cool covered can. The aroma should always be preserved.

2. The utensils and any cloths used in coffee making should be kept scrupulously clean. Never use a pot with a spout that is separated from the body of the pot by strainer holes. It is impossible to clean this thoroughly. The pot, percolator or filter machine should be scrubbed every time it is used. Rinse and dry it thoroughly. Put it away with the top open so that the air may circulate freely. In a machine requiring a filter cloth, take a new cloth each time; before using, wash it well in clear water to remove all starch or other filling from the goods.

3. Use freshly drawn water, preferably taken from the cold-water faucet and brought to the desired temperature quickly. Water that has stood in the hot-water tank does not make the best coffee. The natural flavor and mineral content of the water will affect the taste of the coffee also. If the city water is unfavorable, it will pay to buy spring water for the making of tea and coffee.

In using coffee infusion for flavor, as in gelatin desserts, mousses or ice creams, do not use coffee that has cooled and has been reheated, but use freshly made coffee while it is still hot. "Warming over" coffee gives a poor flavor.

Decaffeinated coffees are to be found on the market under several trade names. The best of these have more than 95 per cent of the caffeine removed and are made from carefully blended coffees. The method of making is the same as for coffee. Coffee substitutes are usually grain products, roasted and ground.

Tea comes next in importance in this type of beverage. While the historic background of the use of this beverage has much of interest, the kinds, source, curing and preparation are of greater concern in this article.

The tea plant is a shrub of about 3 or 4 feet, kept this low by pruning; consequently it is wide and bushy. The shrubs of 3 years are ready to produce picking leaves. On plantations in India and Ceylon, only the leaf bud and the smallest leaves are used. In China a greater proportion of the leaves is taken.

The value of the uncured leaf is dependent on locality, soil, weather, time of picking and selection of leaves.

In Ceylon the picking takes place every eight or ten days the year round. In China and Japan there are four principal harvest periods. Little of the April, or "first," picking reaches this country because most of it is consumed by the rich in China and Russia.

The two general classes of tea are green and black; they are made from the same shrub but cured differently. Green tea is withered by drying the leaves and then heating them with constant stirring in a pan over a fire. The leaves are then rolled by hand or by machine into balls, allowed to "sweat" for a while and again roasted gently. The leaves are sifted, sorted and given the final roasting. The largest leaves are less choice than the smaller ones. Tea dust is least valuable of all. Most of the green tea comes from Japan, and a smaller amount is obtained from China. The grades or trade names of these teas include:

Japan Teas

1. Basket fired—fired in bamboo baskets; leaf a dark olive green.
2. Pan fired—fired in large iron pans; green leaf.
3. Natural leaf—generally pan fired but not well dried; many coarse leaves.
4. Nibs—lumpy bits.

China Teas

1. Gunpowder—youngest and smallest leaves; the distinction of title applies only to size and shape.
2. Imperial—larger than gunpowder tea.
3. Young Hyson—longer leaf than gunpowder tea.
4. Hyson—longest of all.

Black tea is made by withering the leaves on trays in the sun and then allowing them to ferment for some hours, until the leaves attain a bright copper hue. The leaves are then heated gently over a fire and rolled on a table. The leaves are again air-dried and then rolled and roasted once more. After three roastings and rollings, the tea is sifted, dried and packed. Most of the black tea comes from Ceylon and India. The grades or trade names of these teas include:

1. Souchong—largest leaves; cheapest grade.
2. Pekoe or Pekoe-Souchong—Pekoe referring to the appearance of the under sides and ends of the leaves.
3. Orange Pekoe—orange referring to the color of the ends of the newer leaves.
4. Flowery Orange Pekoe.

5 and 6. Broken Pekoe and Broken Orange Pekoe—the second siftings of groups 2 and 3.

From India only are obtained Assam and Darjeeling teas. From China come Congou or "English breakfast" tea, Monings, Kaisows, Souchong and scented Orange Pekoe.

Oolong is generally classed as a black tea, but this is not correct because it is not as thoroughly fermented as the black tea and holds some of the color of the green tea. There are two chief grades of Oolong tea: Formosa and China; Formosa is the better.

The principal constituents of tea are thein, theophylline (a volatile oil to which the flavor and odor are due) and tannic acid, which is astringent.

Tea, whether black or green, should be made with freshly boiling water. Utensils and pots should be kept scrupulously clean. It is better to use tea balls or a strainer than to have the strainer as an integral part of the pot, because as with coffee, it will not be possible to keep the spout in a good condition.

Chocolate and cocoa are classed as "theobromine" beverages. Chocolate is made from the ripe seeds of the bean of the Theobroma cacao, a plant now grown in many tropical countries. The seeds are fermented, dried, roasted and deprived of their shells, which are known as cocoa nibs.

Chocolate contains from 0.3 to 2 per cent of theobromine, from 12 to 15 per cent of protein, from 30 to 50 per cent of fat, which is known as cacao or cacao butter, and 25 per cent of starch. The chocolate flavor is developed in the roasting; this flavor is not pleasant, but it becomes so on the addition of sugar and flavoring matter, such as vanilla, to the chocolate.

Cocoa is a powder prepared from chocolate by the removal of a portion of its fat by hydraulic pressure. Thus, cocoa contains a smaller percentage of fat (about 15 to 30 per cent) than does chocolate and a larger percentage of theobromine. Considerable extra starch is usually mixed with the cocoas sold cheaply, and thus these have smaller percentages of both theobromine and fat.

As shown by their composition, chocolate and cocoa have, unlike tea and coffee, a food value of their own, and the theobromine stimulates both the cardiac and the skeletal muscles so that these beverages have a slight stimulating action, but they do not have the same stimulating effect on the nervous system that tea and coffee have. Unfortunately, the fat which they contain sometimes retards the secretion of the gastric juice and thus may interfere with digestion. The most satisfactory way to make chocolate and cocoa is to make a paste by cooking the chocolate or cocoa with sugar and water and then keep this paste in the refrigerator until used, adding enough for each service to the milk.

There are a few miscellaneous stimulating beverages that should be mentioned:

Coca is prepared from the leaves of the Enythroxylon coca of South America. Rarely is this product used for infusion, as most of the natives chew the leaves. Cocoa is the stimulating factor.

Guarana is made from the crushed seeds of the Paullinia cupana of South America. It contains caffeine, tannin, sugar and a volatile oil. Guarana is commercially presented in rolls or balls from which pieces are broken or grated into sweetened water, either hot or cold.

Khat is made in Arabia and Abyssinia by infusion of the leaves of the shrub Catha edulis.

Kola comes from the Sterculia acuminata of Jamaica, East India, Ceylon, Brazil and the western coast of Africa. It contains kolanin, which breaks down into kola-red, caffeine, and tannin. The powder is boiled in water for about five minutes to procure the infusion.

Maté is made from the leaves of the South American holly (Ilex paraguariensis). The beverage is bitter, aromatic and astringent. It contains caffeine, an essential oil and a small amount of tannin. The merchandising of maté is an important industry in South America.

"Table" waters are usually merely well flavored spring waters. Mineral waters are reported to contain certain minerals, according to their origin, and to be of medicinal value; some are charged or carbonated. These should be used only on the recommendations of a physician.

Carbonated waters are too much a part of the daily regimen to be lightly passed over. The first carbonated beverages are said to have been placed on public sale by Townsend Speakman of Philadelphia in 1807. The beverages, as one buys them today, are made of water, sugar, fruit acids, flavors and carbon dioxide. Some are colored. The manufacture is under strict regulation. The bottled beverage is a safer drink than water from unknown sources. There is some food value, since the sugar content averages about 11 per cent. The flavoring or flavor-modifying acids most commonly used are citric, tartaric, acetic, lactic and phosphoric. The other flavor-giving principles are aromatic substances such as cloves, chamomile, vanilla bean, citrus fruit peel, celery seed, ginger and sassafras root, wild cherry and cinnamon bark, the stems and leaves of sage and peppermint, and fruit juices. Coca nuts, coca leaves and tea leaves yield extractives for the cola beverages. Many of these are colored with caramel. The sparkling tone of these beverages is due to carbon dioxide.

While the majority of people regard carbonated beverages as "treats," yet they are more than that. They are real food contributions in a pleasing, refreshing form. The use of "snappy" drinks in gelatin mixtures or with ice cream for Ginger Float or Boston Cooler helps to make less arduous the torrid days of midsummer.

The Nap *As a Pick-Me-Up*

The lucky person who gets a seat in the elevated or suburban train may have Pullman accommodations for his five cent fare.

By HENRY M. STEGMAN

MEDICAL advice we have in plenty concerning the night's sleep but less about his baby brother, the nap. Yet this interval of rest may be of a worth out of proportion to its length. Valuable goods, say those of Napoleonic stature, come in small packages.

A big captain of industry in New York found himself much refreshed by a short sleep after lunch but discomforted if he prolonged it. So he "snoozed" with a bunch of keys in his hand. Gradually his grasp would relax. When the keys fell, he would be awakened. The same device was employed by a man who had to deliver several exhausting speeches a day. He would not have been able to keep this up, he declared, but for the brief nap that he took between the addresses.

The city editor of an afternoon newspaper had another idea. After lunch he would go to a barber shop to be shaved, always to the same barber, chosen for his lack of loquacity. Invariably the newspaper man slept through the process. This scant respite from mental as well as from physical activities rejuvenated him amazingly for the afternoon rush.

A famous publisher whose nerves were overwrought lived at the Union League Club, New York. When he left his office at 5 o'clock, he would go home, undress and get into bed. After sleeping an hour or so, he would take a bath, dress for dinner and feel fresh as the morning dew. Unfortunately, many persons find that a nap interferes with their sleep at night. But nervous persons are likely to feel all the more soothed at bedtime for having had an afternoon snooze.

A young man in New York was compelled for a considerable period to work at his office in Wall Street late every night. He lived in the upper Bronx and consequently had to spend two hours a day on subway trains. Five hours' sleep in bed was all he could get. This was not enough, although he made up rest on Sunday.

One night he fell asleep on his journey home. By some subconscious mechanism he awoke just before reaching his station. The nap helped a lot but did not quite equal the deficiency. The next morning, instead of reading his paper he slept all the way down town. He aroused himself just before reaching his station. After that his two daily snoozes were a matter of course. Combined with his scanty allowance of time in bed, they gave him the rest that he needed to remain at par or nearly so. Only once was he carried beyond his station.

Later he read with some interest the suggestion of a woman physician that one should learn to sleep while traveling to and from business on underground, elevated or suburban trains. She said that it was comparatively easy to acquire this habit and also to teach oneself to awaken just before reaching one's destination. It is true that many of us can terminate sleep

at a fixed hour by setting the mind on it the night before, thus accustoming ourselves to act as our own alarm clocks.

The utilization of Pullman accommodations on a five cent fare is, of course, conditioned on getting a seat. That would rule out most travelers in the rush hours. But those who are lucky enough to get aboard at or near the station from which the train originates could count on preempting a "berth." Certainly many of us would be revivified and rejuvenated if we could steal two such naps a day.

While sleeping is chiefly done at night, physiologists tell us that there is no essential and inherent inappropriateness in reversing the process. Night is, of course, the natural time for slumber. The darkness and quiet are favorable to it; but night watchmen, newspaper workers, railroad men, mail clerks, factory hands on the night shift and seamen find that they can maintain their health although they sleep while the sun is up.

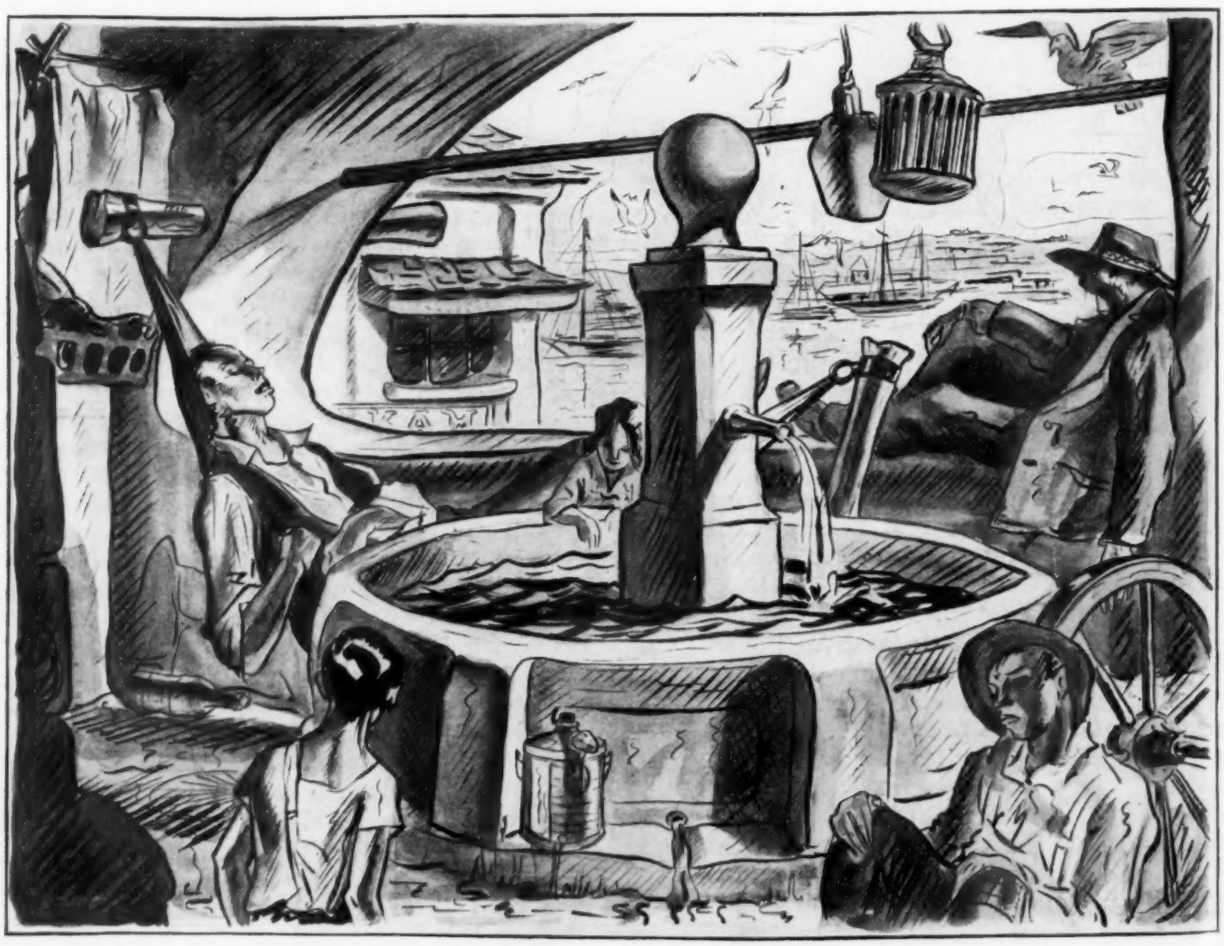
In an extensive experimentation dealing with muscle movements in the night, the subjects had to sleep with a bright light shining, so that moving pictures could be taken of any change they made in their position. At first their eyes were bound with a dark cloth, but after a few nights, they rested quite as well as usual with their eyes uncovered.

Many of the lower animals habitually remain in their dens during the day and prowl in search of food at night. Cats are certainly nocturnal.

The nap after the noon meal is common, perhaps universal, in tropical countries. A justification for it is that it comes at a time when the heat is so extreme as to discourage all activity. On the continent of Europe, the siesta is general in some countries. American travelers, when they have come to have checks cashed have been amazed to find banks closed from 12 o'clock to 2. In Vienna a chain of shoe stores made a revolutionary move a few years ago by keeping open continuously all day. The practice among other shopkeepers was to close for perhaps two hours for dinner and a nap.

A drowsy feeling is liable to follow a heavy meal in the middle of the day. Some persons, however, have indigestion if they go to sleep at that time; the bodily functions slow down, and food tends to stay in the stomach a long time. Lying with the head and shoulders raised by means of several pillows will in some cases avert this discomfort.

Many housewives have found that an hour or two of rest after the noon meal enables them to



The siesta, or after-dinner nap, is a good old custom in many European countries and in the tropics, where the intense heat discourages all activity.

end their labors in fine fettle. If they work continuously they are exhausted before night. Even if they do not actually sleep they "unlax" as Andy expresses it over the radio. A nap for young children is advisable.

Even a brief sleep gives a benefit out of all proportion to its duration. Nervous action as well as physical action involves physicochemical changes of matter and expenditure of energy. This is even true of the processes of the brain associated with sensation, perception, emotion, volition and varous other types of psychic phenomena.

When one is asleep, the higher nerve centers are protected from the stream of impressions flowing in from the sense organs. During sleep, waste matters are removed and cerebral material is recuperated.

The first two hours of sleep are the deepest. One can get a better quality of the article in a nap than in the average of a full night's rest. This has been proved by various investigators whose plan was to drop a ball from varying heights onto a plate. The amount of noise necessary to awaken a sleeper was regarded as the index of the intensity of slumber. While the results were not identical, they all indicated that sleep was soundest the first hour or hour and a half, growing rapidly lighter thereafter. The disparity was extreme. If the diagram of intensity had reached 775 at the end of the first hour, it had dropped to 25 after the third hour.

It is common knowledge that withdrawal of blood from the brain is conducive to sleep. The drinking of warm milk, and various applications of water to relieve cranial pressure are based on this principle. Delicate instruments of measurement show that in sleep the hand and forearm have greater volume than in waking hours. Shortly before the awakening, however, these parts diminish in size. Even if the sleeper is not actually awakened, the same effect is produced by some sensory stimulus such as music. Here is additional evidence that the first sleep is the most profound.

The nap is hardly in consonance with the bustling American spirit but is all the more needed as an antidote for it.

Negro Babies and White Babies

THE fact that there are more than 12,000,000 Negroes in the United States makes it desirable for the medical profession constantly to be aware of the special health conditions affecting that race. A review by one life insurance company of the conditions among 2,500,000 Negro policy holders indicated that their death rate was higher than that of the white policy holders at all age periods under 45. The higher rate was due mainly to tuberculosis, chronic inflammation of the kidneys, pneumonia, and heart disease, especially to forms of heart disease associated with major venereal infections. However, such diseases as measles, scarlet fever, erysipelas, infantile paralysis and various nervous disorders were less common among Negroes than among white persons; the former also suffer less from diabetes and exophthalmic goiter than do the latter.

There are various other interesting facts in relationship to disease among Negroes. Illegitimacy is from eight to nine times more common among them than among the white population. The number of breast-fed babies is higher among white than among Negro infants, whereas the number of partially breast-fed babies is higher among the Negroes. The number of Negro mothers employed away from home during and after the period for childbirth is high.

Obviously the chief difference in the bodies, aside from the general construction, is that associated with the color of the skin. Therefore, factors involved in the relationship of the skin to the physiology of the body as a whole are of the greatest interest. The black skin is able to tolerate heat better than the white, probably because of the greater heat loss from radiation and conduction; the pigment in the skin is apparently not as important in this connection as the circulation. One of the main factors of importance is the relationship of the color of the skin to the absorption of ultraviolet rays. The skin of the Negro does not pass the ultraviolet radiant energy as easily as does that of the white person. In cases of tetany, when sufficiently large doses of ultraviolet radiation are used, the calciums in the blood of the white and of the Negro child rise at the same rate. When small doses are used, the calcium rises much more rapidly in the white than it does in the Negro infant after a level is reached.

Severe rickets and the form of spasms called tetany are much more prevalent among Negro than among white infants. This is presumably due to the lessened permeability of the pigmented skin to ultraviolet energy. The potbelly associated with rickets is more frequently seen among Negroes than among white persons.

Because of the difficulty in getting ultraviolet rays through the Negro skin, particularly in regions where sunshine is not especially intense, it is desirable for Negro infants to obtain additional ultraviolet radiation by the use of special devices or by excess feeding with cod liver oil or vitamin D concentrates.

Molding the Man of Tomorrow

By

Maurice L. Blatt

MAN POWER is the greatest asset of every government whether at peace or in war. In a republic, the city, the state and the nation exist only for the purpose of serving and conserving this resource. Man power is the infantry of industry and the holding power in war.

It is the product of numbers of men times the efficiency of each of these units. Accomplishment of objective is its measure of efficiency in the same way that 33,000 foot-pounds per minute is the measure of horsepower. The energy of a community, the force exerted by an organization, the physical, moral and spiritual power of a nation rise and fall with the two factors, numbers and efficiency. The natural laws which govern this ebb and flow of population are the subject of analytic historical review and philosophic research. These scientific investigations show that the number of inhabitants of a given region fluctuate with food supply, climatic conditions and industrial development. To develop these numbers to the highest state of physical, moral and intellectual efficiency is the task that confronts the physician who specializes in pediatrics. He assumes the responsibility for the production of a man from a mite. The new-born babe is placed under his supervision that he may correct any deformities with which the child is born, prevent those the infant might otherwise acquire, outline the quality and quantity of his food, vaccinate and inoculate him against infections, counsel as to exercise, schooling, clothing, sleeping and housing, and administer medical care when he is ill. It is the duty of the pediatrician to instruct in habit formation, which is easily controlled in infancy, and to guide the boy toward good habits and away from those that will interfere with his future mental happiness. Physical well being, economic success and balanced integration constitute the goal toward which the pediatrician strives to bring the child. If his advice is followed conscientiously by the parent, the final result is a man with a well body, usually taller than his ancestors and more robust than the previous generation. He stands squarely on his feet, is not dependent on his seniors but has a sense of self reliance; he thinks for himself, yet seeks counsel before undertaking new ventures. He is physically capable of coping with the world in which he finds himself; he is mentally prepared to occupy a business and a social position in which he finds the greatest happiness. After he attains the success that health, habit of industry and good judgment almost positively assure, he continues to enjoy life by knowing how to employ his leisure.

An analysis of the elements that enter into the development of this man from the material which parents bring to one's office for consultation and advice covers a most interesting and varied range. Heredity deserves first mention, not because it is necessarily of first importance but because it is first chronologically.

Heredity means the transmission of certain parental characteristics from generation to generation. This transmission is effected through the chromosomes, tiny threads of matter found in every living cell. Chromosomes vary in number in different species of animals; there are twenty-four in the human ovum and an identical number in the human spermatozoa; the chromosomes carry on the characteristics of race and family. The union and fusion of one of each of these male and female cells constitute the origin of new life. The individual so produced has the general physical and mental characteristics of his parents. It is interesting that these characteristics depend on a predominance of one or another chromosome. The baby whose parents are of markedly different stature favors one or the other; he does not fall half-way between. The same is true of his muscle development, of his skin color and of many other fundamentals. In a general way, the child's disposition follows that of one or the other parent. He develops what is known as dominant traits. If the parents' mental outlooks are widely different

fundamentally and are equally strong, he finds himself in difficulty until one or the other trait dominates. Until this domination occurs, his difficulty is one of mental vacillation. Every one has seen a team of horses trying to start a load. If they pull together, the wagon moves steadily over the road toward its destination. If the off horse leaps forward, his side of the doubletree goes with him, but the load does not move unless the near horse leans into the collar at the same time. A good driver pushes his team into its collars together. In an analogous manner, a balanced mentality, the result of similarity in dominants from the two parents, leans into the collar of life and carries the load forward to its destination. When the brain is under control of its driver, we recognize a man as one who has a one-track mind. Such a mind has the ability to concentrate for months and years on a single purpose.

How this ability may be approached in the average person by proper habit formation, early in life, is most interesting. It depends on taking advantage of certain reflexes with which the baby is born and building up character by condition-reflexes. For instance, the ability to cry is a normal reflex in the new-born infant. It is his only method of expression during his first months. Crying is not considered normal expression in adults or in older children. It is, therefore, important that a child is not rewarded by fondling when he cries. He must not grow up with the idea that crying produces results or obtains objectives. In other words, one should never pick a baby up simply because he cries. In order that his clothing may be dry and comfortably arranged, it is examined and changed every four hours at the regular feeding time. If baby cries between feeding times and has been properly cared for at his last nursing period, he is not again given attention until the next period. This is one of the difficult points in the education of mothers, grandmothers and sometimes fathers as well. Parents are prone to allow emotion to rule their own reactions rather than to use reason. To the inexperienced parent, crying is wrongly interpreted as signifying pain. It is the duty of the pediatrician to outline the routine of the infant's life to the last detail, if the man to be developed is to be superior to his environment. I have cited this as an example of the manner in which one takes advantage of a normal reflex and makes a condition reflex for the man, a condition reflex that helps him to fit into his environment and aids in making him superior to it. A "cry-baby" becomes a whiner as a child and a complainer when he reaches manhood. The habit of obtaining objectives by crying must, therefore, be prevented. After a habit is formed, whether it is smoking or crying, it is difficult to change.

The body is made of small units—the cells. Each has its inception in another cell of like character; each has its function. All functions of cells are dependent on oxygen. If the cells of the brain are without oxygen for eight minutes, their death and the death of the individual is certain. Air is, therefore, one of the prime requisites for good health. It must be taken into the lungs, where the oxygen enters the blood stream and is carried wherever growth or action is taking place. All cell activity is similar to the burning of coal: without air, there is no burning and no heat.

The normal birth weight is 7 pounds, and the average boy weighs 22 pounds when 1 year old. During the first year he grows 10 inches in length. Think of the amount of food he must break down in his stomach and intestines to rebuild into his own tissue that he may add this much growth and weight. The selection of a balanced diet for this child is not a haphazard affair. To choose properly the various minerals, salts, carbohydrates, proteins and fats for the individual infant and child is an important part of a pediatrician's duty. Years of careful medical experimentation were necessary before the present state of knowledge was reached, and facts are constantly being added. For years it has been known that bones do not develop well without cod liver oil; now it is known that vitamin D of cod liver oil is essential for bone development, and it has been found that a vitamin D that is 10,000 times as strong as that of cod liver oil can be produced. Vitamins, chemicals of unknown composition, are essential for the proper production of teeth, good appetite, freedom from infection, and normal brain development. By taking advantage of professional knowledge of this kind, beginning with the average child one may look forward to the development of a man who will lead physically because he will be efficient mentally. Habits properly formed in infancy and educational advantages such as are afforded in every American community are the basis of mental growth.

Education is still too academic—some of the most brilliantly productive minds of the world have been those of men with little schooling. They learned by observing and selecting from their single-track observation those things that were to prove useful to them later. The habit of study can be acquired at school, but the habit of learning is much more dependent on good vision, good hearing, normal sense of smell and good feet. Many excellent blacksmiths have been spoiled by trying to make doctors of boys with no aptitude for a profession. The natural tendency toward business, toward art or toward a profession should be encouraged as soon as it is discovered. General education must proceed far enough to allow for that discovery, but to keep all boys in school because some boys are to become teachers or preachers is as poor judgment as it is to put white collars on coal stokers because bank presidents wear them.

The length of human life and the volume of human happiness have been increased as parents and guardians have learned to take advantage of medical knowledge, largely gained from animal experimentation. Smallpox, for instance, caused the death of one third of the population of France in one year before Dr. Jenner discovered and gave the world vaccination. Today, it is only the most ignorant or backward family that does not have its children protected against this dreaded disease as soon as the infants reach the end of their first year. Today on the whole continent of Europe, outside of Russia, there are not as many cases of smallpox as there are in Illinois during the same period of time. Vaccination can eliminate this disease from the earth.

Diphtheria was, at one time, a dreadful scourge. Whole families a generation ago were wiped out in a week. Since Dr. von Behring gave diphtheria antitoxin to the world, illness from the disease has rapidly decreased and deaths have decreased proportionately. Medical science has gone still further toward the prevention of this disease. Three hypodermics of a toxin perfected by Dr. Schick, given three weeks apart, protect the child against this disease for life. It is now possible to prevent lockjaw, rabies or hydrophobia, and typhoid and to cure epidemic meningitis.

In the production of a man, the prevention of disease is distinctly a more important concept than its cure. Time from school, time from play and time devoted to gainful occupations are lost by illness, and it is not only the immediate loss of time, but the end results that must be considered. For instance, enlarged diseased tonsils may not be debilitating in themselves, but through them and through diseased teeth most of the rheumatic infections of childhood and adult life enter the body. Rheumatism is the cause of nearly all heart diseases in childhood. Children are crippled by it, and this one disease, largely preventable, caused more deaths than did any other in the state of Illinois last year. Many who died were adults. Heart disease acquired in childhood ended what might have been useful lives if the precautions that are known today had been offered these men in their early years.

There is one group of organs that has a distinct influence on one's career. These are the glands of internal secretion—the endocrine glands. They are interdependent rather than independent; when the endocrine system is in proper balance, the child develops according to rule. If the thyroid is deficient, the child is a mentally deficient dwarf; if one part of the pituitary gland is overactive, he becomes a giant. So an enlarged thymus produces definite symptoms, and disease of a part of the pancreas produces diabetes. Disease of the suprarenal glands causes an individual to be easily exhausted, and an excess of thyroid gives a rapid heart action. If sex glands become active early in life, the whole system is disturbed. All these derangements are recognized by the physician and all are correctable if seen early in life.

Heredity is to be considered in a child. Heredity cannot be controlled, but environment can be. How the child's nervous system will develop is dependent in a large measure on the pediatrician's influence. He can mold the child's bones and his muscles; he can present opportunities for education, and last, but of as great importance as any of these factors in the production of the man of tomorrow, he can correct deformities that would cripple his career, prevent many common diseases, and speedily cure many others once believed to be fatal.

ON TO LIMA

Ill with an acute attack of appendicitis, this airplane passenger was carried 400 miles in less than six hours to adequate hospitalization at Lima, Peru.

In nearly every flight Pan American-Grace Airways operating in South America have saved a life by timely transportation.

New-born babies are harmlessly branded by ultraviolet rays to avoid confusion during their stay at a Pennsylvania hospital, pictured below.

Wide World

Ewing Galloway

By offering ideal working conditions and an opportunity to learn a trade, the Young Women's Hebrew Association of New York City not only prepares girls with cardiac disease occupationally but provides a means of livelihood.

A CANDYMONGER

This dealer in sweets occupies a warm spot in the hearts of Chinese children. The confectioner makes his candy on the street and sells it, still hot, to his eager customers.

Herbert Photo

Underwood and Underwood

Virginia, 16 year old daughter of Mr. and Mrs. George Wightman, follows in the tennis footsteps of her parents.

Brown Brothers

Brown Brothers

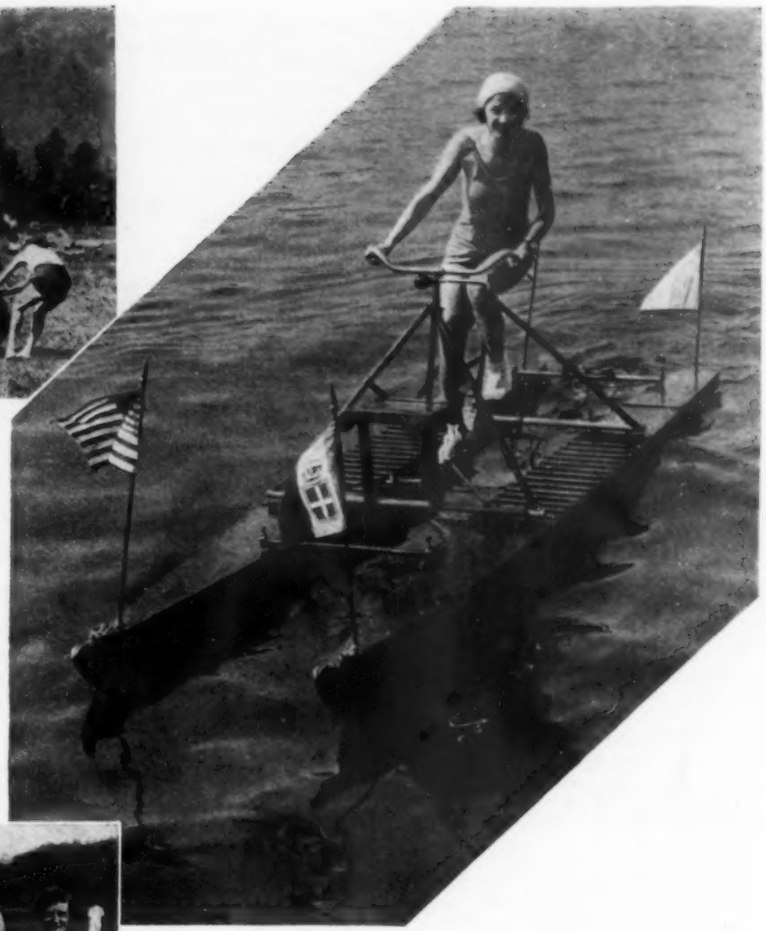
CINNAMON

Long a favored spice, cinnamon in the cutting process is shown to the left. The long cinnamon sticks ready for packing are pictured above. The industry employs many natives of Ceylon.

Herbert Photo

PULLING FOR HEALTH

At Gstaad, in the Bernese Oberland, Switzerland, children are treated for all kinds of diseases. Switzerland has several open-air hospitals.



Fotograms

"Bike boating" has become the popular sport at Palm Beach, Fla., as is shown in the picture above.

Herbert Photo

HAPPY COMPETITORS

These "friendly enemies" are vieing for honors in the annual tennis championships for children at Frinton-on-Sea, England.

CHILD WELFARE AWARD

The trophy pictured to the right is to be awarded to the American Legion Post in California that makes the greatest efforts in child welfare work this year. The trophy honors the late Rufus M. Whaley, a leader in this work.

Acme

Nature's Kindergarten

By
Grace Snelling Kane

Much the mind of the growing child
Can learn through Nature's teaching:

How fleecy clouds are turned to gold
By the sun's rays outward reaching;

How the wind makes music rare
Through tall grasses blowing;

How little ducks swim up and down
Through waters swiftly flowing.

Snickles and Snortles

the Circus Twins

By
NELLIE G.
HERRIMAN

He hurled the shoe far down the hall.

Chapter III

IT BEGAN when Snortles awoke one morning and found that it was raining. Water ran in streaks down the window pane and stood in puddles on the walk. The face of the old earth was gray and dismal, and raindrop tears dripped, "plink, plink, plink" from the trees.

"Aw, gee!" said Snortles in disgust. "Look at it rain! Of course it would have to rain, just because I wanted to go to the picnic in the grove!"

He doubled up his hand into a sturdy fist and pounded the pillow angrily. He jumped out of bed and pulled the lower sash of the window down with a thump that shook the house.

Snickles sat up in bed and rubbed the sleep from his eyes. "What's the matter?" he asked, yawning.

"Aw, look at it rain! And all because we wanted to go to the picnic!"

"Hmm! It *is* raining, isn't it?" Snickles ran to the window and looked out at the sheets of water that fell from the sky.

"Yes, it *is* raining, isn't it!" mocked Snortles, taking up his clothes and going toward the bathroom.

If he had not been so full of temper he might have noticed that the corner of the rug was wrinkled, but he was so angry that he could think only of the rain and the ruined picnic. It was not the rug's fault that he caught his toe and went sprawling, but he scrambled clumsily to his feet, gathered the rug into his arms and hurled it into a far corner, yelling so loudly that Grandmother came running.

Even her jolly smile and soothing voice could not clear away his temper, and I'm afraid that his face was much more dismal, cloudy, and generally disagreeable all that day than the gloomy sky overhead. He broke a shoelace, as people so often do when they forget to pack their tempers snugly away behind a smile, and became more temperish than ever; he even hurled the shoe far down the hall. I'm not sure that throwing things helped his temper, but all day, things flew from his angry hands to far corners.

Grandmother and Snickles were badly worried. Where had their sunny little clown gone? Surely this sulky, black-browed lad could not be Snortles? Hoping to clear away his frown, they invented plans and games all day long, but he only scowled and told them not to bother. Perhaps a game of bear would have been a good idea, for he was certainly more like a bear than his usual smiling self.

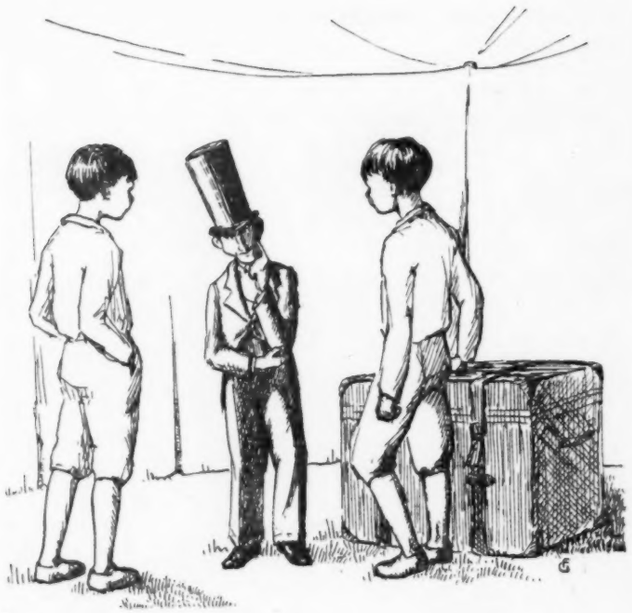
Mother had written that she would soon come and take the boys back to the circus, and they spent a great deal of time every day in the old hay-loft, practicing their somersaults, flip-flops, and handsprings, for being a clown in a big circus is far from play, and they must be prepared to do whatever Mother should ask in their new act. Now that Snortles had lost his temper and failed to find it, their work did not go nearly so fast, for he became excited when the least little thing went wrong.

"It isn't worth trying!" he would shout. "I'll not do another thing! I won't! I won't!" So you can see that the work did not go ahead very rapidly.

Grandmother was dreadfully worried. She talked kindly to Snortles, explaining that it would never do to spend so much time in anger and telling him how unhappy Snickles was.

"See," she would say, pointing to his clown twin, "there he sits, sad as can be, hoping you will cheer up and speak nicely to him. That is the trouble; when we are gloomy we make the whole world gloomy, too."

"I don't care," Snortles would answer, turning away.



"Hello, boys," said Pee Wee. "Twins?"

After a day or two he had become so used to being grouchy that he almost forgot how jolly it was to run and laugh and sing. He kept telling himself that he was dreadfully abused and that he had no friends.

"I hate the whole world," he would say. "Nobody likes me, and I like nobody."

Snickles finally kept as far from him as he could, for Snortles made it so unpleasant that being alone was almost better than being in his company. Even Dandy, the wee brown monkey, would scamper far under the bed when Snortles had one of his "temperish" spells. With his bright beady eyes, he would watch until the storm was over; then he would come out from his hiding place and climb to Snickles' shoulder, chattering happily. Indeed, it was a sorry little home when Snortles became angry; one would certainly not guess that his name meant sunshine, laughter and happiness.

It was not long until he began to show that all was not well with him. After one of his tantrums he would find that his head ached, that he was shaky and ill at ease—in fact, that he felt badly all over. You might think that such results would make him mend his ways, but it did not happen so. Feeling pale and sick did not teach him a lesson; it only gave him an excuse to be more crabby than ever.

When Mother came to see them, she was surprised to find that one of her boys was pale and unhappy, while the other was rosy and smiling. She looked at the pale one closely but said little about his unusual appearance. While the boys were in their room packing their trunk, she said to Grandmother: "Has Snortles been ill? He looks badly, indeed."

"No, he has not been ill, although I've expected that he might become sick almost any day," answered Grandmother. "He has fallen into the habit of losing his temper and will not try to shake it off. He storms and rages, and then feels badly for a whole day. He complains of headaches and is nervous and uncomfortable. Yes, indeed, I've been afraid his temper might lead to sickness any day!"

Mother thought for a long time. Finally she said: "I shall take him with me, and I hope he will become his old self again when he is back in the circus. If he doesn't change, I don't know what I can do."

Snickles and Dandy were overjoyed to know they were going back to the thrills and excitement of the circus, and even Snortles smiled a little as they came in sight of the big top. They had had a good time at Grandmother's, but how nice it was to come back and be clowns once more!

"Just think of all the old friends we'll see!" chanted Snickles.

"And there will be new ones," smiled Mother.

"Who?"

She smiled mysteriously. "Wait and see."

Having arrived at the circus lot, they became so busy greeting their old friends that they forgot her words and were much surprised when there came a tapping at their door in the afternoon, and the wee-est little man they had ever seen strolled into the tent. He was not nearly as large as the boys, although he was evidently much older. He was dressed in a red velvet suit with white buttons, patent-leather shoes and a tall silk hat.

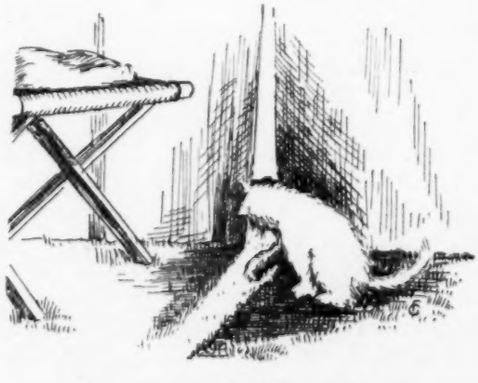
"Hello, boys," he said, looking them up and down. "Twins?"

"Yes," they said together.

"Welcome to my circus."

"Your circus?"

"Yes, indeed." He saw a box of sweet crackers on the chest and helped himself, without waiting for an invitation. "Yes, indeed! It is my circus. They couldn't get along without me, and I couldn't get along without them, so that makes it my circus, don't you see?"



Downy played with a sunbeam that came through a crack.

"It is badly mixed up," said Snortles doubtfully.

The dwarf shook his fist angrily. "Mixed up?" he shouted. "What do you mean? Can't I make myself clear? You must be dull! I'll let you know my word is not to be

doubted! I'm Pee Wee, the greatest dwarf in the whole world!" He was striding about angrily, and Dandy scampered behind the chest, just in time to avoid the flying hat of the dwarf.

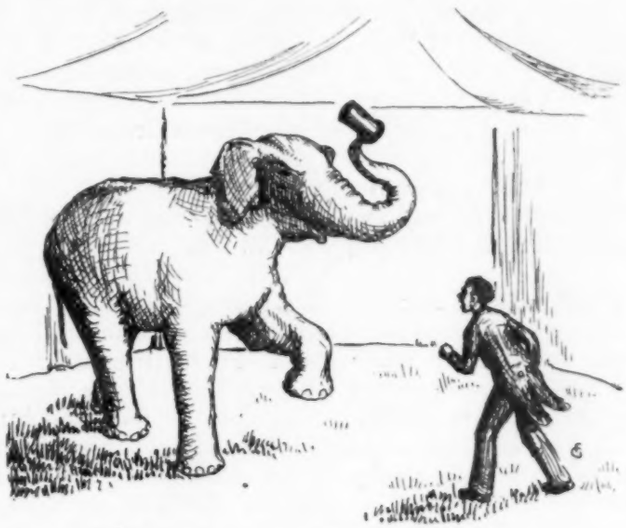
"I'm—I'm sure we meant no harm," stammered Snortles. "And I'm sure you are a fine dwarf."

Pee Wee stood still and smiled at them. "Let us go and visit my friend, who is also a newcomer here," he said, the angry storm completely gone.

The boys followed him from the tent, and Dandy trotted along, begging to be carried.

"Let me have him," said Pee Wee, putting out his hand toward the monkey. Dandy chattered excitedly and screamed when the dwarf put his hand on him to take him from Snickles.

"I'll get even," muttered Pee Wee, and he strode angrily toward a large tent on the other side of the lot. There he tapped at the entrance and walked in without waiting for an invitation. The boys had been taught that this was a rude thing to do, but they followed, not knowing what else to do in this case.



Susie gaily lifted Pee Wee's hat from his head.

There was a movement inside the tent, a creaking, and a voice said: "Hello, boys, have some candy?"

There sat the most enormous woman they had ever seen. She was licking her fingers and smacking her lips. Beside her was a table on which was a cake, the remainder of a pie, and a huge box half filled with candy. A platter, piled high with bones, was on the ground beside her chair.

The boys almost forgot their manners; they wanted only to stand and stare at this mountainous person. They removed their hats politely after a surprised moment.

"How do you do?" they said together.

"Fine, thank you," she said, wiping her fingers on her short pink dress. "As long as I have plenty to eat, I'll never worry. Have a piece of candy." She thrust the box toward them.

"No, thank you," said Snickles. "We are careful not to eat between meals, and especially sweets, for we are trying hard to become great acrobats like our father."

"That's all very well, if you like it," she said. "For me, I like to eat." She cut a liberal piece of chocolate cake.

"Yes, and look at you!" jeered Pee Wee rudely.

"Ha ha ha!" she laughed. "And look at you! My eating keeps me up, but your temper keeps you down!"

Pee Wee's face became purple, his fists doubled up, and he shouted angrily, hurling the candy box at the corner of the tent: "I won't be insulted, I tell you! I won't! I wont!"

"Oh dear me," she giggled. "Poor Pee Wee! Always losing his temper!" She lifted the folds of her shawl, and a plump white kitten blinked in the light. The boys thought they had never seen a prettier kitten, and even Pee Wee stopped raging and stared at it.

The fat lady held the kitten toward the astonished dwarf. "It is for you, Pee Wee. It is something for you to love. Perhaps it will help you to overcome your bad habits. Dear, dear! If only I could be young like you! Then I would be able to change my bad habit. A bad habit is a terrible enemy. It fastens itself on one in youth and can't be torn away in age."

"I don't know what you mean, but I do thank you for the kitten," said Pee Wee, stroking its silky fur lovingly. "I'll call it Downy, for it is just as soft as down could ever be."

They bade the fat lady good-by and went out into the sunlight. Pee Wee carried his new pet tenderly and paused often to show it to the circus people whom they met.

"He seems changed already," whispered Snickles to his brother. "It looks as if something to love was just what he needed."

Doesn't he have *terrible* fits when he is angry?" whispered Snortles.

"Just like yours," agreed Snickles.

Snortles' face became purple. "Shut up!" he shouted.

"My goodness, what is the matter?" asked Pee Wee. "You frightened my kitten."

"I don't care about your crazy kitten," snapped Snortles. He turned and walked away in the direction of the twins' own tent.

"Please don't mind him," said Snickles. "He lets his temper lose itself sometimes, but he doesn't mean to hurt your feelings."

The dwarf was scowling. "He'd better not talk like that to *me!*" he muttered.

Snortles and his mother came from the tent. "Snortles feels that he owes you an apology," she said to Pee Wee.

Snortles made the apology rather ungraciously, and the four walked on toward the

elephant tents. Dandy was resting cozily on Snickles' shoulder, and Downy purred contentedly in the shelter of Pee Wee's arms.

Inside the tent the elephants in a long row were picking up hay with their large trunks and tucking it into their mouths. Old Susie stretched out her trunk from her place at the head of the line and felt about their hands.

"She hasn't forgotten the green grass we used to pull for her," said Snickles happily. "I think she'll be glad to have us back."

Susie's trunk lifted Snortles' cap from his head. She tossed it into the air and caught it, then placed it back on his head, wrong side foremost. Snickles laughed gleefully, and the trunk caught at his cap. She threw the cap far across the tent, and he raced after it, shouting with laughter.

"She hasn't forgotten a single one of her old tricks," he said.

Pee Wee was dancing for joy. The white kitten clung firmly to his coat, seeming not a bit afraid. Pee Wee's red coat and shining hat made a bright spot in the gloomy tent. Old Susie turned her little eyes on him. The long, snaky trunk waved over his head.

His hat! She tossed it high in the air, and he screamed in angry astonishment.

"Give me that!" he howled.

Susie caught the hat, placed it on his head, then swept it off again as swiftly as lightning. This time she hurled it across the tent, and its shining crown was smashed against a big tub.

Pee Wee's face began to swell and became an ugly purple. He stiffened in rage, bawled a few angry sentences, drew back his arm and threw —what was it?—the white kitten!

The scream died in Pee Wee's throat and became a gasp instead. The boys stood as if frozen in horror. Mother went quickly forward and picked up the ball of silky fur that lay beside a heavy stake. It quivered in her hands, and she stroked it gently.

"Is—is it—?" the words could hardly leave Pee Wee's throat.

"No," she said gently. "See! It is moving. It is only stunned and will be all right in a moment."

"I'm going to practice laughing when things go wrong," Pee Wee said.

"So am I!" said Snortles huskily. "Being slightly temperish isn't fun when it hurts those we love."

"It never fails to hurt some one or something," said Mother, wrapping the poor kitten in her scarf. "Now we must take Downy up to the tent and get him nice and warm. I do hope there are no bones broken."

"May I carry him, please?" asked Pee Wee, humbly. "I'll be very careful not to hurt him."

"Of course you may," she said, placing the little bundle gently in his arms.

They made a warm little bed on a cushion for the kitten, and soon he was purring comfortably. After a few spoonfuls of warm milk he jumped down from the pillow and began playing with a sunbeam that came through a crack in the canvas of the tent.

A sound of puffing came from outside, and a breathless voice said, "Pee Wee! Pee Wee!"

Pee Wee ran to the door. There stood the fat lady, badly out of breath after the short walk from her own tent. She waddled into the tent, saw the white kitten, and said: "Humph! There has been a mistake. They told me you lost your temper and hurt Downy badly."

The dwarf's face became red and ashamed. "No, it was not a mistake. I did lose my temper, and I did hurt my kitten."

The fat lady was looking at him closely. "I'm afraid," she said softly, "that you are not a fit master for a pet."

Pee Wee doubled up his fists. His brows drew into the ugly scowl.

"I am!" he shouted. "I am! Be still, you fat old woman. I'll—"

At the sound of his voice the white kitten scampered toward the darkness under the bunk, crossing the dwarf's feet in its attempt to make a speedy journey. Pee Wee looked down, startled.

"Oh!" he said, and the anger faded from his face. He looked up at the fat lady and smiled, slowly and as if it were hard, just at first.

"You are right," he said, still smiling. "And you're not an old fat woman; you're my best friend. If you think best, you—" he gulped, "you must take Downy back with you."

The fat lady threw back her head and laughed, a long, relieved laugh.

"Of course not," she said. "He has the finest master in the world now that you can smile when you feel slightly temperish!"

Snortles looked from one to the other, and his face was thoughtful, but happy, too.

(To be continued)

HEALTH and the SCHOOL

Edited by J. Mace Andress, Ph.D., 67 Clyde Street, Newtonville, Mass.

Summer Play Schools

THE RECOGNITION of the value of play in education marked the beginning of a revolution—a revolution that is still going on. The idea of play in education during colonial times was not even dreamed of; if it had been, it would have been repulsive to the grim, God-fearing Puritans of those early days. The realities that they faced were those involved in making a living, fighting Indians and preparing for the life that stretched beyond the grave. The child must learn to work and worship. Play, which seemed to deal with the trivial, could have no place in the school practice or educational philosophy of the Puritans of the seventeenth and eighteenth centuries.

The Play Movement Begins

Gradually came a change in educational theory and practice; a new conception of play arose. With the rapid growth of cities, children who always wanted to play and always would play found it impossible to play safely in the crowded metropolitan areas. This led to the playground movement, which, like any new movement, was at first vigorously opposed but is now accepted without question by educators. Those who sponsored the spread of playgrounds began to appreciate the greater significance of play. It was soon seen to be an ally of health education. Vigorous play, particularly in the open air, strengthened the muscles, sharpened the appetite, developed the heart and lungs, and promoted growth. It also helped to prevent tuberculosis and other diseases as well.

One of the most striking results of the study of play was the discovery that play did not concern itself with things that were trivial from the child's point of view, but that it was serious and that under proper supervision it helped to train the child to meet realities. Joseph Lee pointed out that "the seriousness of play is shown in the standard of effort and achievement that it holds up. The strictest schoolmaster of the old nose-to-the-grindstone school never secured the whole-hearted effort that is seen on the ball field every afternoon. . . . A boy who is almost turning himself inside out in his efforts, but who fails in any point of the game, is spoken to by his companions with a severity which no grown person is sufficiently hard-hearted even to attempt. Strenuousness of effort is no palliation of his offense. There is no plea that 'little Johnny did his best.' Good intentions don't go on the ball field; the standard is inexorable."

The growing belief in the health and general educational value of play on the playground was also reflected in regular school work. It first appeared in the kindergarten, which demonstrated that a necessary and worthwhile school could be constructed without the use of books. The idea that children were passive creatures into whom knowledge could be poured gave way to the principle that they were active human beings who could be guided in such a way that their self activity might be focused on educational, social and moral ends. Self activity and expression became fundamental to the kindergarten. Movement, gesture, directed play, song, color, the story and various human activities became a part of kindergarten technic. Although the first public school kindergarten in the United States was opened in St. Louis in 1873, the spirit of play worked its way into the grades slowly.

Play Develops Character

In the last twenty-five years, nothing has been more refreshing in elementary education than the suggestions that have come from the study of children's play. It was found that children learn primarily by doing, that in play they set up goals for themselves, choose means for their realization and execute their purposes. Play develops with comparative ease such qualities as self reliance, discrimination, courage and cooperation. Children with all seriousness enlist themselves in play. They put their whole selves into their play activities. Since these traits were so valuable, it was obvious that they could be encouraged by bringing play into the schoolroom. As a result a change is now being made in the school furniture. The desks and seats that were once screwed firmly to the floor in primary rooms are disappearing, and movable chairs and tables have taken their place. Cutting, pasting, drawing, dancing, the writing and acting of plays, and various creative activities are in evidence. The modern elementary schools demonstrate the principles of self direction and self activity. They are places in which children may grow naturally—physically, mentally and emotionally.

Spirit of Play Accepted

Although in America it is easy to find the best and worst schools, the acceptance of the spirit of play by many of them is a definite step in the direction of physical and mental health. Children learn through natural rather than through artificial ways how to adjust themselves to the world in which they shall mature.

The healthful spirit of play in the regular schools has worked profound changes in aims, organization and methods, but progress is somewhat limited during the regular school year by the organization and requirements of educational institutions that are in a transitional stage; in summer play schools there is more freedom in demonstrating a new kind of opportunity in mental and physical health.

Under the caption "Teaching Health" are three articles by members of the Child Study Association of America. They give a striking picture of the health work in summer schools. Although the teachers and school supervisors who read them may not in every instance profit directly from their suggestions, indirectly the articles should be worth while for all who are interested in the problems of health education.

TEACHING HEALTH

(In this column will be published each month concrete examples of good health teaching. Teachers are invited to send in contributions not exceeding 600 words and preferably less to the editor of this department. Illustrations of the actual work of children will be welcomed. Contributions accepted will be paid for but no manuscripts will be returned.)

COORDINATING THE HEALTH ACTIVITIES OF A SUMMER PLAY SCHOOL

THE LAST week in June arrives, and the schools close their huge impressive doors. For the next few months they will present to the community an austere and somewhat forbidding front. They seem to say, "We have done our work; the summer months do not concern us." But the school child—where is he, what is he doing, where does he go, and who then assumes the burden laid down by the schools? For the first few days, the hours of freedom and the release from school tasks seem wonderful to him. Soon, however, he has exhausted the possibilities of the vacant lots. Time hangs heavily on his hands, and it is little wonder that he gets into mischief.

"It is no wonder," Jacob Riis said many years ago, "that the boiler bursts with all the pent up steam." Many agencies have recognized in children the changes of the summer, have seen for themselves the physical, mental and moral slump during the long vacation period with its unaccustomed leisure.

Just think of what the summertime can mean to a child with freedom to think and to choose, to work and to play, in a friendly atmosphere with a trained teacher who is a helpful guide but not a giver of tasks—one who has a personal interest in him as an individual, and yet helps him to work happily in a group. That is what the summer play schools aim to do for 2,000 children in New York City and in several other cities of this country as well.

It all began fourteen years ago as a war-time measure in one settlement house. The plan was to work not with a shifting group but with the same group in one particular neighborhood throughout the summer months. The results were so encouraging and the possibilities so challenging that the play schools continued after the war ended. In order to get a clear picture of the play schools, one must realize that no two are alike or of the same size, nor do any two serve the same neighborhood. In one instance, 300 children may be seen, representing as many as eleven different nationalities and enjoying an almost ideal play school program in a large private school building. In another section of the city, on a hospital roof is a small school of fifty, and in still another group are eighty-five children in a public school building, organized to serve a community need and backed in part with hard-earned community money.

The summer play schools committee of the Child Study Association serves in an advisory capacity to the play schools in New York City and in several other cities as well.

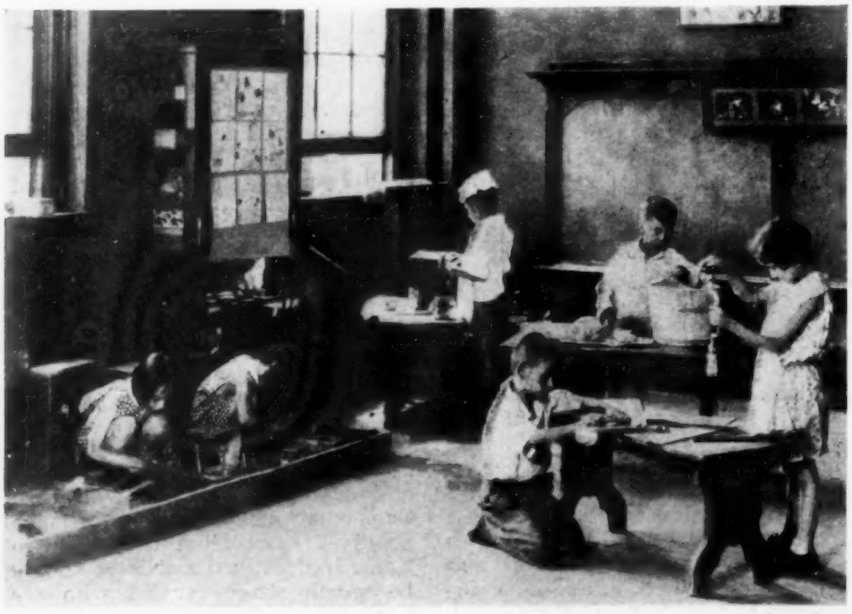
The children arrive at 9 a. m. and remain until after 4:30 p. m. The day includes a hot lunch, a rest period, a shower or a swim and milk in the afternoon. In addition, the study of music, drama, art and nature and exploration in the immediate environment as well as trips farther afield are all important activities stimulated by the teacher and integrated into a rich and varied program.

The health of the child, in its broadest sense, takes precedence over all else. For this reason a physical examination is made of each child before the school opens, and work for remedial measures starts immediately. Many preliminary meetings with teachers are held to help them understand and meet the needs of these children. Health teaching is indirect and is carried on by providing a wholesome physical environment, fresh air, cleanliness, opportunities for relaxation and actual sleep, plenty of physical exercise in games and dances, and above all many chances for developing wholesome attitudes in the day-by-day living and working together. For example, it has been possible to work out some of these desirable attitudes and principles in actual practice by providing a little apartment in which older boys and girls can market, cook and clean, make furniture and decorations and entertain their friends if they so desire.

Here, on the other hand, is a 5-year-old group. They go out to dig in the sand in the playground close by the river front. There is little interest shown other than in the sand itself. They dig and sift and pound and mold—all fine experiences and immensely valuable to the child from the point of view of his own physical development. The teacher says little, but she has a fine opportunity to watch the play of the children and to recognize fatigue, restlessness or discomfort of clothes. She is then ready to help in the social and emotional adjustment of each child.

How does health come into this program? It is part and parcel of the whole plan. In the daily discussion period, in working and playing together, at lunch and rest time, in the various explorations in the community and through reading, indirect health teaching goes on, and as the weeks go by, the child has almost unconsciously changed his habits and attitudes. Emphasis comes in using natural situations for developing desirable health attitudes. This is particularly true of the younger children. They can absorb a great many simple health facts indirectly in a way that will not make them health conscious. Always the school concerns itself, not with products of work but rather with a real interest in child growth.

ETHEL HOUSE BLISS,
New York City.



Kindergarten workers at the Community Play School.

Lunchroom at the Family Center.

INTEGRATING PHYSICAL HEALTH IN THE SUMMER PLAY SCHOOLS

TO VITALIZE the health program of the summer play schools, it has been found that one of the essentials of an effective preliminary program is to have a home visitor who understands the parents of the neighborhood and who will help them to gain the right attitude toward their families and toward the play school. Since the activities of the play school are adapted to the normal child, the physical examination is necessary to find out which children are able to take an active part in the program and also to protect other children. In addition, it forms the basis of the corrective work.

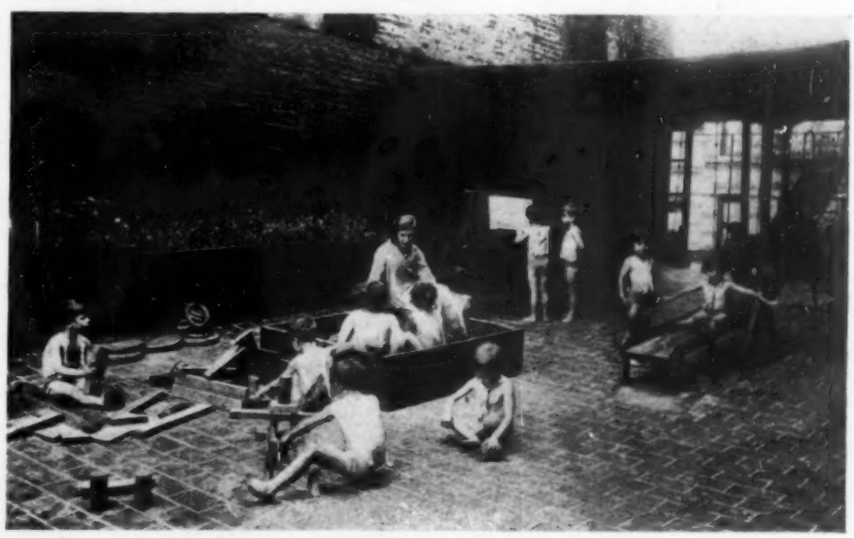
It is important to have a doctor who understands children and has a sympathetic approach to them and who also recognizes the problems of the home and welcomes parents to the physical examination. He takes the time to discuss the results of the examination with the parents without frightening them. It is particularly wise to have a doctor who is tremendously interested in this work; otherwise he will not be able to gain the child's confidence. If there are small children who are frightened by the examination, it is better to have them watch their brothers and sisters for a time or even to bring them back a second or third time until they feel at home with the doctor, for the emotional upset that establishes a fear of the doctor may be harmful.

There should be as much privacy as possible during the examination, to avoid embarrassment for both mother and child. Every effort should be made to make the mother feel free to ask the doctor any relevant questions. Here again friendliness on the part of the doctor creates that confidence which is so desirable. Ample time should be allowed for this so that there is no feeling of hurry or of pushing the mother aside. She should leave feeling that she can trust the judgment of the doctor, the play school director and the home visitor. It seems wise to have the physician who has made the preliminary examination come to the school for a few hours each week to examine newly enrolled children and to look over other children who need remedial care.

The lunchroom also provides a means of bringing about opportunities for a closer cooperation between mother and school, school and child, and mother and child. The location, equipment and arrangement of the lunchroom are as convenient and attractive as possible so that th surroundings are conducive to quiet, happiness and contentment for the children and the teachers. Certainly it is important to serve adequately planned, well prepared, attractive meals, introducing small portions of only one new food at a time, along with one or more dishes which the children like and to which they are accustomed. But even more important is the attitude which is developed in these children toward new food. It is not advisable to force children to eat, to deprive them of any part of their meal or in any way to connect unpleasant experiences with meal time.

Whenever it is possible it is helpful to send home the week's lunch menus in advance, with suggestions for the planning of more adequate meals served at home; this plan also tends to lessen repetition of foods on any day. It gives the mothers a feeling of closer cooperation with the school and stimulates an interest so that often they come to school to find out how certain foods are prepared. In some instances they come into the school kitchen and observe the actual preparation of the food. During the mother's visit the dietician in charge has an opportunity to give her practical help.

The dietician also meets with small groups of children just before the luncheon period to discuss desirable table courtesies and the customary ways of setting the table. No child is forced to take part in this activity, and not until he has the desire to join the group does he do so, although an effort is made to find out and remove the cause of his seeming lack of cooperation. With this guidance, children have a definite part in the planning and prepa-



Sunbaths on the roof of Hamilton House.

ration of meals and absorb much useful information in answer to questions which arise spontaneously. The mothers then see how smoothly the meal may be served without need for "hopping up and down" from the table. They notice with pleasure the share that the children are having in setting the tables and helping with the meal, and thus they realize that the child can be just as helpful in the home when given a chance.

Since young children get their most valuable health training in the home, it is important to keep a close contact with the parents through the home visitor, the school, the child and the parents' groups. In most instances there are only one or two meetings during the summer. These group meetings help to give the mothers a clearer understanding of the summer play school, its aims and its attitude toward children, and they also aid the mothers in understanding how to prevent and deal with behavior situations.

In order that there may be a transition from one play school season to another, it is valuable to keep this contact with the mothers during the winter by means of study groups. It has been found that if the study group is to have a well integrated health program, it must meet the needs of the family for physical, mental, emotional and social health. There was a time when groups of mothers met to discuss merely the physical health or parent-child relationships or problems in social relationships. But no longer is the program considered in such narrow terms. Instead it must be presented to the mother collectively if she is to understand the family needs as a whole. Since the goal of any group is to make for happier family relationships, it makes no difference whether it is approached from the home-making or the child study angle; they cannot be separated.

ONA YOUNGBLOOD,
New York City.

MEETING EMOTIONAL NEEDS IN A SUMMER PLAY SCHOOL

THE EMOTIONAL health of the child is taken into careful account in the summer play school. Principles of mental health are thoughtfully applied to the everyday situations. Not only to minimize but to prevent overt difficulties that may arise, the teacher handles her class not as a group but individually, recognizing each pupil's special needs and special abilities.

One readily realizes that in order to carry this through with any kind of success, the teacher herself must be a well adjusted person with a background of mental health. She must be constantly alert for symptoms not only of obvious behavior situations but of the more subtle difficulties that are not so readily recognized. The teachers themselves, realizing this need as an essential of their own achievement, are more and more acquiring technics for using these principles in situations that they face as part of their day's work.

In developing her unit of work, the teacher takes into consideration the interest and capacity of each child, so that he may in his own way have the greatest possible amount of satisfaction and achievement from his work, whether it is with paint, clay or other material. All the while, the teacher is developing new interests, offering new opportunities for each child according to his level. When the children play games the teacher watches carefully that the special disabilities of the children are not accentuated and that competition is based on the general average of the group and that, above all, no child shall carry over any feeling of unfairness. In other words, at lunch time, at rest hour, at play and throughout the daily program of activities every child will be developing the emotional strength that comes through a feeling of satisfaction, of adequacy and, above all, of security. Emotional health is not taught as such, but rather its principles become integrated at every point into the child's daily life.

Trips and excursions are planned with great care to avoid fatigue and consequent irritability and negativism. Physical fatigue is so often a cause of emotional disturbance that frequent short periods of relaxation are a part of the daily program. In short, at every step and at all times, the whole child is considered from all standpoints, so that the close of the summer play school season will find each child grown not only physically but emotionally.

Naturally, behavior situations are bound to occur, no matter how alert the teacher may be nor how interesting the material the child has to work with. There is always the child who wants only to lead and for whom the teacher must provide opportunities where he can follow happily. There is always the child who stands away from the group and for whom the teacher must provide an activity in which his interest will be aroused to the point where his participation will be more easily achieved. There will always be the child who is negativistic because at home this technic has served him well. In this instance the teacher's attitude will be such that the child's negativism will be met without any satisfactory response and he will find that his desire for attention will be attained through a more constructive mode of behavior. There will also be the child who is somewhat physically handicapped because his heart condition is not up to par, or because he is left-handed, or because he stutters. For these children, the teacher will be especially careful to build on each child's special ability and at the same time to strive to use these special abilities for group achievement so that every child will feel himself a constructive contributor to his group and realize that he has a definite place in it and a share in the duties and responsibilities.

Many more such situations could be named, but space does not permit. Those that have been mentioned are merely typical of difficulties that arise in every-day living and that can best be met by an understanding on the part of the teacher of the ways and means of achieving happier adult-child relationships.

VIOLET A. JERSAWIT,
New York City.

NEW HEALTH BOOKS AND TEACHERS' MATERIALS

"STANDING Up to Life—Good Posture and Foot Health," "Milk—An All-Round Food" and "Yesterday and Today"[1] are three excellent new health education booklets issued by the Metropolitan Life Insurance Company of New York. They are all illustrated and are packed with worthwhile information. Teachers in the upper grades might well have these pamphlets on the reading table in their classrooms. Samples may be procured free of charge by writing to the Metropolitan Life Insurance Company, New York.

DR. CURTI'S point of view and the chapter headings of her book[2] are quite different from those of Dr. Strang. Although Dr. Curti does not follow the traditional treatment in most texts in psychology, the plan of attack is general rather than specific. Some of the chapter headings are The Child's Mental Inheritance, The Growth of Meanings, The Instinct Theory, and General Causes of Juvenile Delinquency. Although reference is made throughout the book to the abnormal and exceptional child these references are used only so that the reader may better understand the normal child.

1. New York: Metropolitan Life Insurance Company, 1932.

2. Child Psychology. By Margaret Wooster Curti. Pp. 527. Price, $3.20. Longmans Green & Company, New York, 1930.

New Books on Health

HABITS FOR SAFETY

By Harry W. Gentles and George H. Betts. Cloth. Pp. 228, with numerous illustrations. Indianapolis and New York: The Bobbs-Merrill Company, 1932.

OUT OF A rich experience in industrial and Red Cross work, these authors have prepared a guide book for teachers and for students which will be of the greatest importance in the prevention of hundreds of thousands of accidents, of which a tremendous number occur through a lack of attention to safe actions. Safety means not taking unnecessary, careless or foolish risks. There is hardly an activity of our daily lives that does not involve some risk, but there are means of prevention; however, even the best of means fails if the person responsible is careless. The authors meticulously point out that men of the finest courage are men of caution and carefulness. They are willing to take risks but none that is unnecessary.

Approximately 100,000 persons die each year in the United States from accidents. Many of these accidents are the result of the greater speeding up of life which has come with the machine age. The four kinds of accidents that cause the greatest number of deaths are those from automobiles, drowning, falls, and burns and scalds. Up to the age of 4, more deaths are caused by burns and scalds than by any other form of accident. From the age of 5 to 70, the automobile is the worst threat to life among all forms of accidents. Boys run more risk than girls because they are more often in the street.

Among the accidents frequent in the home, falls are the worst type and make up about 44 per cent of the total. Then come burns, scalds, explosions, firearms and asphyxiation, and after that, poisons, cuts and scratches. These causes combined make up 90 per cent of the accidents in the home many of which could be prevented if safety habits had been formed.

In each chapter the authors outline methods of teaching to be used for informing children regarding the nature of hazards and methods of prevention. There are posters, questions and answers, and essays recommended as forms of teaching. Special chapters are devoted to safety and adventure in recreation, to the prevention of fires and to safety on the farm and in specified industries. The concluding chapter deals with first aid in various circumstances, the treatment of common injuries and the mental hygiene of accidents. The book is handsomely printed, well illustrated and worthy of a place as a textbook in any organized study of the subject.

MORRIS FISHBEIN, M.D.

GROWTH AND DEVELOPMENT OF THE CHILD. PART III: NUTRITION

A Publication of the White House Conference. Cloth. Price, $4. Pp. 532. London and New York: The Century Company, 1932.

NUTRITION includes the study of food substances and of the biochemical processes which utilize them. This volume on nutrition represents a symposium in which many leading authorities combined to present a complete survey of nutritional problems as they affect the child. Merely to list the authors would be impossible in the scope of a review, but they are all competent in the fields in which they write. Here under one cover is a complete discussion of nutrition for intelligent readers, beginning with an appraisal of food supplies and food qualities, taking up next the protein, sugar and fat requirements, the present knowledge of vitamins, minerals, water and questions of metabolism, and finally considering nutrition as related to growth and health. There are special chapters on milk, on the choice of foods and on dietary adaptations for geographic and racial factors. The book then proceeds to discuss various classes of food substances, such as fruits and vegetables, meat, milk, eggs, cereals, coffee, tea and cocoa. The concluding chapter concerns feeding habits in children and psychologic factors. The book is one of the best in the field it covers; it is exceedingly practical and marks an epoch in the field of publications on nutrition. Of all the volumes thus far published as a presentation of the work of the White House Conference, this is probably the most useful and the one most likely to have an extensive circulation.

M. F.

SWIMMING: ITS TEACHING, MANAGEMENT, AND PROGRAM ORGANIZATION

By Grace Bruner Daviess, A.B., M.A. Cloth. Price, $2.25, net. Pp. 173, with 32 engravings. Philadelphia: Lea & Febiger, 1932.

IN A PROGRAM of health and physical education, swimming stands high as a recommended activity. It is quickly learned in school or in camp. It affords the opportunity for continued progress and may be carried on for many years. Indeed, the mother of the author of this book learned to swim at the age of 60. Miss Daviess presents methods of teaching swimming and in the various chapters of her book which have been suitably authenticated by authorities covers every aspect of the subject. Of particular interest from the health point of view are the chapters on swimming regulations and on poor construction and sanitation. The matter is presented simply and the points of view are modern. The book may be recommended as an excellent contribution to this subject.

M. F.

THE CHILD AND PLAY

By James Edward Rogers. Cloth. Pp. 205. Illustrated. New York and London: The Century Company, 1932.

JAMES EDWARD ROGERS has been, since 1926, director of the National Physical Education Service of the National Recreation Association. He was director of the first playground in San Francisco. He has been devoting his life to the study of play for children and the improvement of that main childish activity. The book which he presents is an outgrowth of the information developed by the White House Conference. It includes chapters on the reasons for play in the home, the school and the municipal playground. The author discusses leadership in play and the evolution of the use of leisure. The volume is a thorough consideration of this subject, based on authentic material, and deserves careful reading by social workers, teachers, instructors in the field of physical education and all those whose daily work places on them the responsibility for helping the child to derive the utmost benefit from his recreational periods.

M. F.

QUESTIONS and ANSWERS

Malted Cereal

To the Editor:—What process is utilized in malting cereal foodstuffs? Does malting cause a cereal to be digested more easily?

G. D. L., Wisconsin.

Answer.—The malting of grain consists in allowing it to germinate in a warm, moist room, converting a large part of the starchy material in the grain into dextrin and sugar (maltose). The process is arrested by heating the grain when dry. Malted grains are somewhat more easily digested than grains that have not undergone this process. In the commercial irradiation of cereals the exposure is of much shorter duration, although the rays are much more powerful.

Syphilis

To the Editor:—Is there clinical or experimental evidence that the spirochetes of tertiary syphilis are less likely to infect another person than those of a primary or a secondary case? If they do infect another, do they cause a milder infection?

M. K., Nebraska.

Answer.—Clinical and experimental evidence show that the virulence of Spirochaeta pallida in a given subject decreases as the years pass, even when no treatment has been administered, and that it decreases more rapidly when standard treatment is intelligently given.

There is no known period after infection the lapse of which uniformly renders these parasites incapable of infecting a second person; it is generally assumed that after three years' treatment beginning with the discovery of the infection, a man may marry without danger of infecting his wife, but that a longer period, perhaps five years after infection, should elapse before a child may be begotten without the possibility of taint.

But since the success of the combat against these parasites varies extremely in different cases, the physician treats the individual, not the disease. Hence approval of marriage and of paternity is given only after a careful inquiry into the past history and present condition of the candidate, and is not based on the fact that any specific period may have elapsed since infection.

Nervous Syphilis

To the Editor:—Following a blood infection in December, 1928, I placed myself in the hands of reputable physicians. I suffered no lesions or disability of any kind. In March, 1929, while I was in the South, a physician covered the nerve heads of both my eyes with tryparsamide, six injections, totally incapacitating me. I returned North and have received the best of care. My blood and spinal fluid both have been negative practically since a month after I received arsphenamine from which I experienced no difficulty. I have received no treatment since December, 1929, except eight sinusoidal electric treatments. The drug which was on the surface of my retinas has disappeared, but the retinas are completely blocked by the remainder. This drug is manufactured by the Rockefeller Institute. I have attempted to obtain some advice from them but without avail. My sight does not fluctuate; light perception is excellent, and my physical condition is good. Is there any information you may place at my disposal or any suggestion that I may turn over to my physicians?

T. J. A., Pennsylvania.

Answer.—The cure of syphilis, especially of the nervous system, requires powerful remedies which are themselves capable of doing harm at times in spite of the most intelligent selection and administration.

Tryparsamide has been demonstrated to be very effective in some cases of nervous syphilis and therefore its use is justified, because anything is better than some of the nervous manifestations of syphilis. It might sometimes, however, produce just such accidental effects as those described. The best advice that we can give is that the inquirer continue under the care of the competent physicians whom he has consulted and follow their advice.

If you have a question relating to health, write to "Questions and Answers," HYGEIA, enclosing a two-cent stamp. Questions are submitted to recognized authorities in the several branches of medicine. Diagnoses in individual cases are not attempted nor is treatment prescribed. Anonymous letters are ignored.

Minerals in Wheat

To the Editor:—I have often heard and read that wheat contains seventeen different salts and minerals. Is this so, and will you please name them? If not, will you kindly name the minerals and salts that wheat truly contains? How should wheat be eaten to get the full benefits of these salts and minerals? After wheat has gone through the threshing machine and is sacked, is it ready for use?

A. S. J., Washington.

Answer.—The minerals contained in wheat are listed in a recent textbook on food and diet as follows (the figures given show the percentage in ash when wheat is analyzed):

Calcium	0.050
Magnesium	0.133
Potassium	0.474
Sodium	0.039
Phosphorus	0.423
Chlorine	0.068
Sulphur	0.181
Iron	0.005

Traces of silicon are also found, and in certain regions very minute traces of iodine and other elements.

In the fourth edition of the book entitled "The Newer Knowledge of Nutrition," by McCollum and Simmonds, the results of feeding animals with wheat and wheat products is discussed very fully. This statement is made: "Although the inorganic content of the wheat kernel furnishes all of the necessary elements, it does not contain enough of certain of these to meet the requirements of the young animal during growth. The latest work has demonstrated that the deficiency in mineral elements in wheat and other seeds is limited to the four elements—calcium, phosphorus, sodium, and chlorine."

The deficiency in vitamins in the wheat kernel is also discussed at length. Wheat, which, next to rice, constitutes the principal food used throughout the world, is almost universally eaten in the form of bread and of cake made with yeast. It makes little difference what method is used in preparing the grain if the product is readily digested.

Whole wheat does contain certain vitamins in larger amounts than white flour but when, as among civilized peoples, wheat is only one item in a varied diet, this is of minor importance.

Drinking Water

To the Editor:—What benefits are attributable to a proper supply of drinking water in the human system? How much water (rough maximum and minimum) would constitute a normal daily supply? What deleterious effects are attributable to a deficiency of drinking water? Is the average person likely to drink more or less than the optimum amount of water? Are any harmful effects attendant on drinking too much water? Should drinking water be taken preferably at meals, between meals or at any time? Is drinking water of benefit in the treatment of colds or of any other minor ailments?

J. M., Jr., Massachusetts.

Answer.—Water as a factor in nutrition is vitally important. Its functions are as follows: (1) It acts as a solvent agent by carrying to the cells the nutritive elements supplied by food, and then carries away the waste products of the body. (2) It is the medium in which all intracellular chemical changes take place. (3) It is one of the chief factors in the regulation of temperature by the process of evaporation of water from the lungs and skin. These processes must go on in order that life may continue; therefore the water intake must be sufficient to furnish water for all these functions.

In health, instinct guides the individual in his water intake, and this guide is generally satisfactory. Thirst is an indication that the body needs water. Various intakes have been recommended, varying from four to eight glasses a day. It must be remembered that all solid foods contain some percentage of water. Eight glasses of water daily is advisable.

If an individual is deprived of water, great distress will result, and death may come within from sixty to seventy-two hours. Lack of water supply in the body leads to impairment of the kidneys and may also lead to poor absorption of food from the bowel and to vomiting and diarrhea. There will be a marked elevation of temperature.

The average person in health is likely to drink nearly the optimum of water, as his thirst will be sufficient guide.

"Water intoxication" is the term given to a group of symptoms exhibited by dogs when water was administered continuously for a long period of time. Death was the eventual result. However, this condition cannot be considered in man because it never occurs, except in the insane. When large amounts of fluid are taken, the output increases and a water balance is automatically maintained.

The question of drinking water between meals is one that has never been answered completely. It is true that water may act as a slight stimulant to the appetite. On the other hand, it is a well known fact that some good eaters do not take much water with their meals and other people drink so much water that they do not eat sufficient food.

The benefit of a plentiful water supply during colds and minor ailments is to insure a sufficient supply so that the body processes may function normally, especially that the waste products may be carried off promptly. In fever the body temperature is raised and there is an excess of evaporation of water from the skin and lungs, therefore increasing the demand for more water by mouth in order to maintain water equilibrium.

Mutism in a Child

To the Editor:—Can you give me any information as to how one can find out how to teach a child, aged 4 years, to talk? This child seems most intelligent, but he does not talk at all. I should like to teach him at home if I can. There must be books written on this subject. I shall be grateful for information.

F. C. A., North Carolina.

Answer.—To answer such a question is almost impossible without seeing the child. Lack of speech in a child of 4 may be due to one of a variety of causes. The most common cause is some form of mental defect, but this child is described as intelligent. Mental defect may be due to heredity, to injury to the brain during birth or to deficiency of some gland of internal secretion, such as the thyroid.

Another common cause of a child's not talking is deafness. The child cannot pronounce words until he has heard them.

Still another type of mutism has come to be recognized recently. This is due to what the psychologists call "negativism." Parents who persistently force a certain idea on a child—the most common example being an overinsistence on eating a required amount—arouse such a spirit of opposition in the little one that they defeat their own purpose.

Deformities of the vocal organs that might prevent speech are extremely rare, although some forms of paralysis of the vocal cords may result from disease.

An experienced physician should be consulted, to rule out abnormalities of the vocal organs, deafness or slight mental deficiency. If none of these is present, no effort should be made to teach the child to talk. Just let him alone.

Dentifrices

To the Editor:—Is tooth paste considered better than Drucker's Revelation Tooth Powder?

M. S., Florida.

Answer.—According to the manufacturers, August E. Drucker Company of San Francisco, Drucker's Revelation Tooth Powder is of secret composition. However, examination made in the bureau of chemistry of the American Dental Association indicates that a tooth powder having the essential composition of Drucker's Revelation Tooth Powder may be made by mixing together 85 parts of finely ground precipitated calcium carbonate and 15 parts of finely ground castile soap, and adding a flavoring agent to suit the taste, such as oil of peppermint, oil of wintergreen, oil of spearmint, or a mixture of these.

There is no intrinsic difference between tooth powder and tooth paste when one considers that the only function of a tooth powder or a tooth paste is to aid the toothbrush in keeping the surfaces of teeth clean. Tooth pastes are generally tooth powders which have been mixed together with glycerin and similar agents. However, many people prefer tooth pastes to tooth powders because of the convenience.

Humidity in the Home

To the Editor:—In a number of articles regarding humidity, I cannot recall one that gave the exact percentage of relative humidity necessary for the various degrees of temperature range common in the average home. (By exact relative humidity I mean the percentage that would be healthful for the various degrees, appreciating the fact that warm air will hold more moisture.) I have had a device installed in the hot air chamber of my heating plant. The dry bulb temperature this moment stands at 66 and the wet bulb at 54 F., which gives approximately a relative humidity of from 44 to 48, an increase of at least 12 to 15 as compared to conditions previous to installation. A table giving the information would be appreciated.

L. F. R., Michigan.

Answer.—No reply can be made on the basis of adequate controlled physiologic experiments. The book standards of from 60 to 70 per cent relative humidity seem to have been dictated by what exists in comfortable summer weather. From 40 to 45 per cent is a realizable standard, and under certain conditions 60 per cent might be obtained without disagreeable results as regards condensation. Keeping the temperatures down—surely not above 70 F.—is more important than humidity, though the latter is desirable.

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To the Editor:—Is there any truth in the statement "running water purifies itself every 30 feet"? If not, please explain.

E. B., California.

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Many factors are involved in this purification. Only the few most important will be mentioned. Bacteria and many of the particles to which they cling are heavier than water and, therefore, tend to sink. It is common knowledge that settling or sedimentation is more rapid as well as more complete in the absence of mechanical agitation. A lake or a slowly moving stream will therefore "purify" itself more quickly than a rapidly flowing river, as far as this one factor is concerned. Another factor in self purification is exhaustion of the food supply for bacteria. Undoubtedly, sedimentation plays a part here. A third factor is growth of low plant and animal forms which feed on bacteria. Agitation with consequent aeration plays little, if any, part in self purification. The active germicidal rays of sunlight penetrate through water too short a distance to be of practical value.

The popular impression that it is safer to drink from a rapidly flowing stream than from a slowly moving one is erroneous, provided the two are contaminated to the same extent.

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Answer.—In one family for getting a helpless member up and down stairs a dumb waiter was installed for about $300. The cable was of steel and the wheel on which it ran was installed on the roof. It seems to be perfectly safe.

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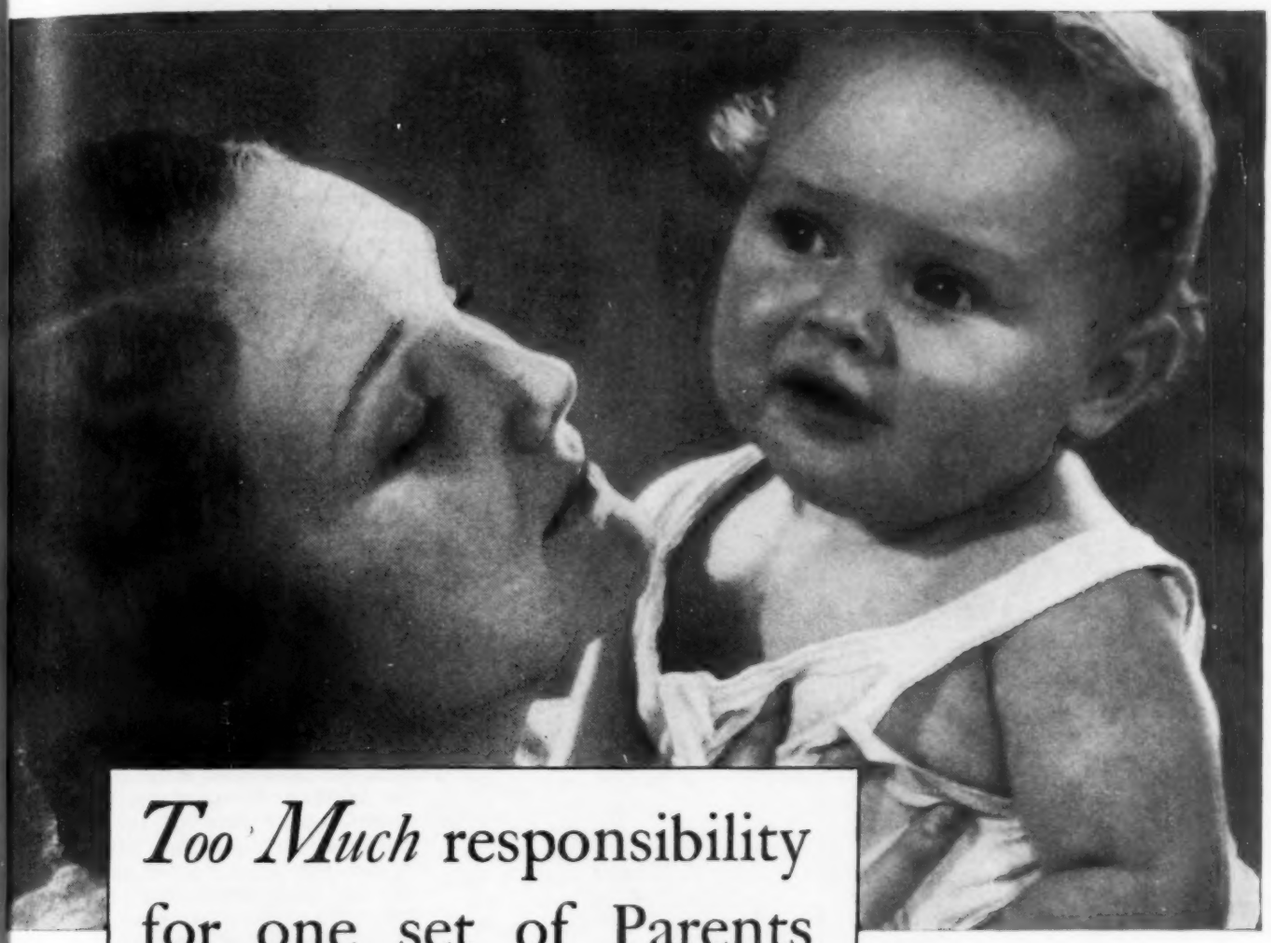

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It is odorless, stainless, and is willingly used by children because it is pleasant to the taste. You will find it inexpensive because its effectiveness is not destroyed even when diluted as many as 3 times.

• • •

Buy a bottle today and use this most powerful, non-poisonous antiseptic for every antiseptic need. As a gargle whenever the throat is irritated, and after any exposure. Pour it instantly into open wounds, cuts, scratches. It is prepared by a pharmaceutical house of recognized standing with the medical profession. On sale at all druggists in the U. S. and Canada. 50¢ and $1.25.

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Made by SHARP & DOHME

HEXYLRESORCINOL SOLUTION S.T. 37

Guard your EYES

©1932 M L I.CO.

It is good fun, occasionally, to play "Blindman's Buff" with the young people. But it would be a tragedy to have permanently unseeing eyes.

ACCORDING to the National Society for the Prevention of Blindness, it is estimated that 114,000 persons in the United States are blind, and that more than half of them need not have lost their sight.

Have you had your eyes examined within the past three years? You may be unduly straining them at this very moment. Only an eyesight specialist can tell you whether or not it is wise to use your eyes in their present condition.

Whenever cases of severe, recurring headache, nervous exhaustion, hysteria, insomnia, giddiness or other similar conditions do not respond to medical treatment, the eyes should be carefully examined.

Defective vision will not improve with the passing of time. If neglected, or if the wrong treatment is given, disastrous results may follow. But a mere imperfection in vision is not the most serious thing that can happen to your eyes. There are damaging eye diseases which, if untreated, eventually lead to blindness. For instance, glaucoma is one of the most insidious eye diseases. It can be present and yet give little indication, at first, of its threat to your sight. Recognized early, it lends itself favorably to treatment. It is, therefore, always advisable for a person more than 45 years old to have periodic examination of the eyes by an expert.

Don't take chances with your vision or with that of members of your family. Make sure that children's eyes are watched and protected. Thirty-five of the forty-eight States now have statutes providing for eye tests in schools.

Remember that it is always difficult to restore sight that has been seriously impaired. Safety lies in consulting an eyesight specialist regularly, even though one's eyes seem to be normal. The majority of defects can be rectified and the eyesight corrected so as to give satisfactory service.

Don't read with the light shining into your eyes.

Don't read when recovering from serious illness—without your Doctor's consent.

Don't read when lying down unless your head and shoulders are propped up and the page is held at right angles to your line of vision.

Don't use public towels and be careful about rubbing eyes with fingers. Dangerous infection may follow.

Don't hold your work or book nearer the eyes than 12 inches.

Don't fail to visit an eyesight specialist at the *slightest sign* of eye trouble.

Don't use eye-washes, ointments, salves or other remedies unless advised by an eyesight specialist.

Don't wear glasses not prescribed by an eyesight specialist.

METROPOLITAN LIFE INSURANCE COMPANY

FREDERICK H. ECKER, PRESIDENT ~ ONE MADISON AVENUE, NEW YORK, N.Y.

LINCOLN AND THE DOCTORS

(Continued from page 531)

which shows an abnormal amount or position of the white of the eye, sufficient to give one the impression of a squint. The apparent tilting upward of Lincoln's left eye can be explained by the edge of the left lower lid sagging below the level of the edge of the right lower lid, thus revealing more of the white of that eye below the cornea or iris coloring. This gives the impression that the pupil or the iris of the left eye is higher than that of the right, whereas the two pupils may actually be in perfect horizontal and vertical alignment permitting comfortable normal single vision.

If that deviation upward was a permanent error, it was so marked that one must wonder why Lincoln did not complain more often of seeing double, especially during the strain of the Presidency. All things considered, I am strongly inclined to the theory that the Lincoln "squint" was more apparent than real, and that the sole incident of diplopia was the result of temporary excessive fatigue.

In his "Personal Reminiscences," Dr. William Jayne states that Mrs. Lincoln told him of the double-vision occurrence and her fear of it, but the good doctor apparently did not associate the incident with defective or tired eye muscles. One cannot resist the thought that had Lincoln told that double-vision story to one of his well informed medical friends more familiar with the eyes than was Dr. Jayne, he might have been spared that "little pang," instead of worrying over it as a "sign"; yet it seems to make the man more human, and we love him none the less for the old-time superstition of which he was a bit ashamed and against which he fought.

(To be continued)

BEHAVIOR PROBLEMS NEED SCIENTIFIC ASPECT

A definite need of psychiatrists, psychologists and physicians has been felt in the field of delinquency, according to the 1931 Year Book of the National Probation Association.

The extension of child guidance clinics in school systems is urged for the purpose of discovering and treating behavior problems before antisocial habits are deeply rooted.

Statistics indicate strongly the wide-spread employment of psychiatric facilities in the disposition of criminal and juvenile cases, and this practice will undoubtedly be extended.

Let health my nerves and finer fibers brace.—*James Thomson.*

For your children's sake–

there is no substitute for Welch's

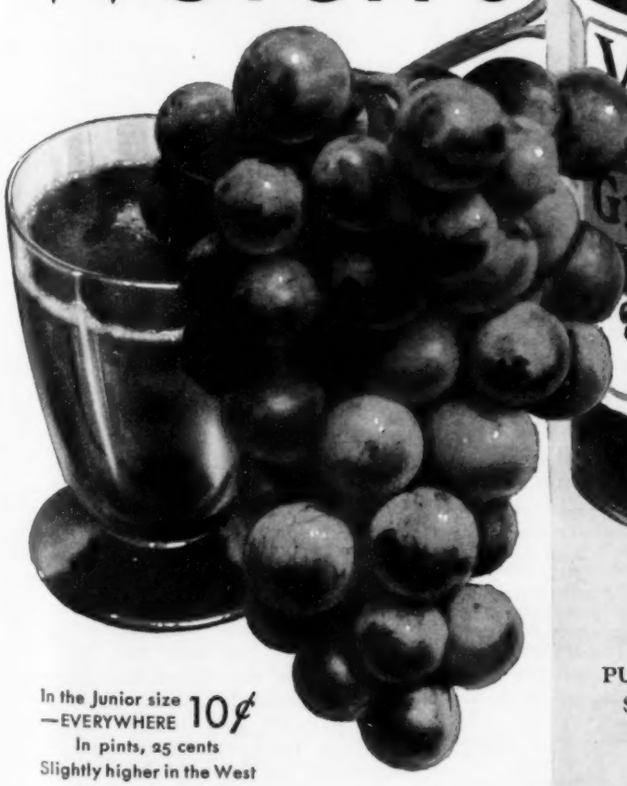
Can you compromise where your children's health is concerned? No—we think not. And that is why we cannot compromise on the high standards to which Welch's Grape Juice is made.

Welch's is the grape juice which has enjoyed the confidence of the medical profession for over half a century. It is made from the finest grapes—washed clean, pressed, pasteurized and bottled under scientific laboratory control . . . under standards absolutely unequaled in the grape juice industry. Under Welch standards, no "seconds," underdeveloped or overripe grapes can ever be used.

Welch's is a true fruit juice with essentially the same nutritional values—sugars, vitamins and mineral elements—as found in fresh grapes.

Why risk unknown "substitute" brands? For after all, you really do not save in buying other brands of grape juice—made to sell on price alone. Welch's is ***full-strength juice*** — never adulterated. Add half as much water, and you still will enjoy the richest flavored, most healthful grape juice made.

Welch's



In the Junior size 10¢
—EVERYWHERE
In pints, 25 cents
Slightly higher in the West

PURE—PASTEURIZED
Standard for 60 years

Serve this sparkling, zestful fruit juice for breakfast. Tempting! Economical! A glass between meals restores children's strength without slowing their meal-time appetite. At dinner, serve Welch's iced as a cocktail. Cool fragrance that reaches out and tempts your appetite! Delightful, too, for entertaining.

●

A noted Eastern scientist, conducting a series of research experiments, writes us that Welch's is rich in body-energizing properties.

●

Welch's *have been makers of quality products since 1869. Grape Juice, Grape Jam ("Grapelade"), Grape Jelly, Tomato Juice, all under the famous Welch label. Write for booklet of recipes. Welch's, Dept. 16 Westfield, N. Y.*

RUN DOWN? *PEP UP!*

TAKE THE TWO-A-DAY WAY

WANT MORE STRENGTH? Want more pep? Want to get to sleep quicker at night? Take the two-a-day way! Drink Borden's Richer Malted Milk cold at the fountain to build your energy. Drink it warm at bedtime to settle your nerves and promote sleep.

Here's the reason Borden's will help you . . . Tests conducted by a great university prove that Borden's is rich in vitamins A, B and G—rich in the identical vitamins and other food elements that so definitely promote energy and sound nerves.

Drink Borden's at the fountain for daytime energy. Buy the home package, too. Drink Borden's warm, made with milk, at bedtime as an aid to sleep. Try the two-a-day way for two weeks—see how much better you feel. Mail the coupon below with 10c for liberal trial package and valuable booklet.

Borden's Richer Malted Milk

Borden's Richer Malted Milk

GO TO THE FOUNTAIN THAT DISPLAYS THE BORDEN DIAMOND

THE BORDEN COMPANY,
Dept. 19-B,
350 Madison Ave., New York.

Enclosed is 10¢ (stamps or coin) for which please send me 3-serving sample of Borden's Malted Milk and booklet.

Name_____

Address_____

City_____ State_____

PARENT REPORT CARD IS CHECK-UP ON CHILD'S HABITS

A "report card for parents" has been prepared by Dr. Shirley W. Wynne, health commissioner of New York City, by which parents can grade themselves in a test consisting of ten questions:

1. Do you give thought to your child's sleeping hours?
2. Do you insist that your child rests every afternoon?
3. Do you know how to use a quart of milk a day in your child's meals?
4. Do you know why you should give him a wide selection of vegetables and fruits?
5. Are you sure that your child gets his share of sunlight (or its substitute)?
6. Do you know whether your child has developed the habit of a daily bowel movement?
7. Do you know why your child should have clean hands and regular baths?
8. Do you weigh and measure your child regularly to know if he is growing as he should?
9. Have you had your child protected against diphtheria?
10. Do you know why you should take your child regularly to the doctor and the dentist?

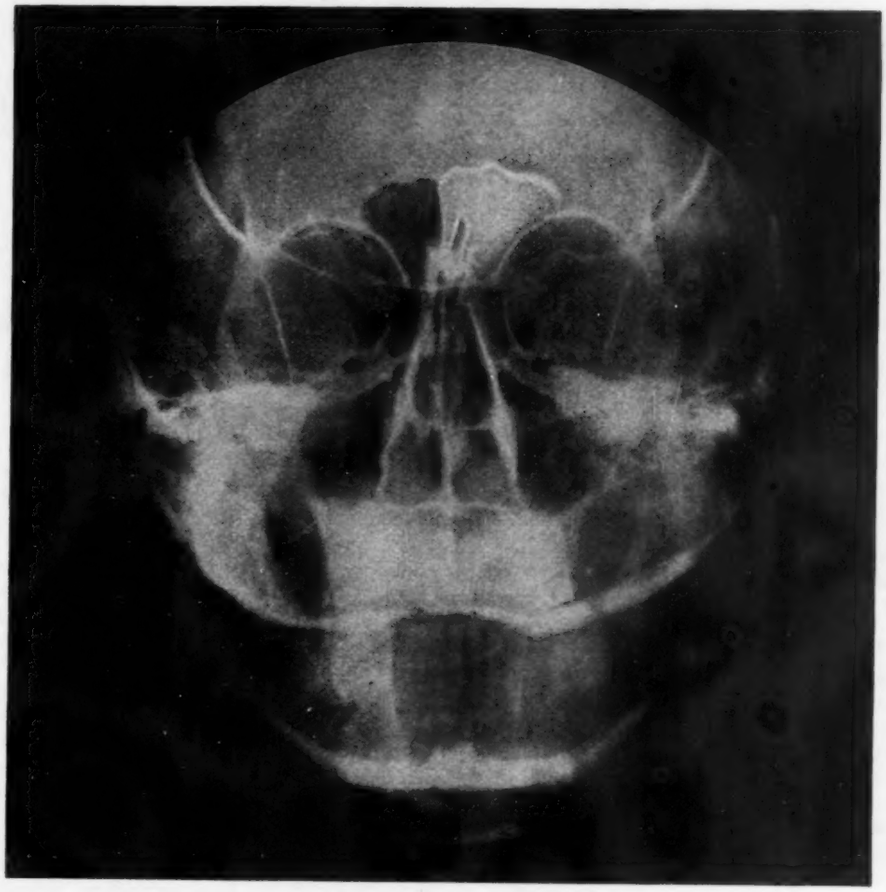
Booklets on the health subjects covered by these questions have been prepared by authorities on child care and training and will be sent from the health department to parents who check the subjects in which they are interested.

ARTIFICIALLY FED INFANT NEEDS PLENTY OF SUNSHINE

Artificially fed babies need more sunshine and more cod liver oil than breast-fed infants is the statement made by the health committee of the State Medical Society of Wisconsin. Children who are artificially fed do not have the vitality to resist rickets and they need plenty of sunlight. The rays that tan the skin and prevent rickets do not pass through clothing or through ordinary window glass.

A baby may have rickets long before his mother notices anything wrong with him. Long before his legs become badly bowed or before other deformities of the bones appear, the disease may have begun to develop. Not only the legs, but the bones of the chest may be seriously damaged. This deformity may prevent his lungs from expanding properly, and such lung infections as bronchitis and pneumonia may develop.

Portrait of a *Splitting Headache*



HERE'S a bad headache that posed for a portrait. Only a few decades ago it would have been impossible to make such a "picture."

But now x-rays readily show the cause of many headaches—infections in the sinuses. The portraits they make—radiographs—reveal faulty conditions that cause discomfort and often lead to serious consequences.

Even common colds can set up infections in these membrane-lined spaces in the bones of the head. When they become clogged with pus and mucous, severe headache, pains about the eyes, result. Frequently, serious illness can be traced to such a focus of infection.

But as in most disorders, early discovery through radiographs makes possible prompt attention which forestalls serious illness and tends to make operations unnecessary. For these reasons, the medical profession urges the annual health audit.

So at least once a year go to your physician for a physical examination . . . and be sure that most important diagnostic aid, x-rays, is employed to make it complete.

HAVE AN ANNUAL HEALTH AND X-RAY EXAMINATION

Send for the free booklet, "X-rays and Health." It tells of many of the ways radiographs are used in keeping you well. Mail the coupon today.

EASTMAN KODAK COMPANY, *Medical Division,*
353 State Street, Rochester, N. Y.
Gentlemen: Please send me your free booklet, "X-rays and Health."

Name_____

No. & St._____ City & State_____

MALADJUSTMENT TO LIFE AT SCHOOL CAUSES TRUANCY

The happy child is not the truant. When a child stays away from school for no apparent reason, there is usually a specific reason—a maladjustment to school life. Somehow school life doesn't fit his needs. There are a few who find school boring because they are intellectually superior to the activity of their grade, but others have been slow from the start. They repeat a few grades and by the time they are 12 or 13 years old they are so far behind that there is no incentive left. They then "play hooky" and are characterized as bad.

Fear and pride constitute two of the greatest causes of truancy. The fear of punishment often keeps the child away from home and from school. The pride that accompanied family disaster and patches on their pants caused two boys to stay away from school. Children are harsh in their criticism, and the fear of being teased hurts the pride.

The boy who decides to fish on a spring morning and is not a consistent offender need not cause worry, but the child who thinks up mischief because he lacks recreational facilities for fun needs a new adjustment. Truancy is no longer a problem of sending the truancy officer out to get the truant; rather it involves a study of the child's personality and a readjustment to school or home life, an article in *American Childhood* declares.

SOCIAL HYGIENE STATUS POOR IN LARGE SCHOOLS

The returns from a questionnaire sent to representative colleges and universities confirm the fact that the least attention is given to social hygiene in the large universities, including most of the state universities; the smaller schools are doing the best work. In a recent issue of the *Journal of Social Hygiene*, an article by M. J. Exner describes the status of sex education in the colleges.

The objectives of the American Social Hygiene Association in its promotion of sex education in the colleges have been three-fold: (1) a sound adjustment, personal and social, of the student, in reference to the sexual sphere of life; (2) preparation of the student for successful marriage, parenthood and family life, and (3) training of the student for social responsibility and leadership in relation to the social problems that arise out of the sex nature of human beings.

Safer for Baby's Summer Diet

—and so easy to prepare!

IN SUMMER, when regularity and uniformity in baby's diet are so essential—the Gerber Products are more than ever useful to you. Compare the absolute safety, the consistent uniformity of Gerber's scientifically prepared Strained Vegetables with the uncertainty of ordinary vegetables. Your doctor will tell you that the Gerber Products are better for baby. Compare their cost with the cost of buying and cooking ordinary vegetables. Compare the simplicity of preparing them with long hours spent over steaming pots. Then you'll see why Gerber's Strained Vegetables are better for you—too!

Economy and convenience are important, of course. But after all—the one *really* important thing about the Gerber Products is simply that they are better—safer for baby.

ACCEPTED AMERICAN MEDICAL ASSN.

Each of the eight Gerber Products is prepared with highly specialized equipment which assures the utmost uniformity and safety—equipment which conserves important vitamin and mineral salt values that are subject to loss when vegetables are cooked in open vessels. Consult your baby's doctor about the variety and quantity of the Gerber Products best for your own baby. More than 84,000 physicians have examined the Gerber Products. Ask for the Products by name. Look for the name—GERBER'S—the Gerber Baby—and the A B C blocks on the label.

Send for Free Booklet

The Gerber booklet by Dr. Lillian B. Storms will give you a complete description of the Gerber Products—and many helpful suggestions for training baby's mealtime habits in a happy, natural way.

Strained Tomatoes
Spinach—Prunes—Peas
Carrots—Green Beans
Vegetable Soup—Beets
15c at grocers and druggists

Gerber's STRAINED VEGETABLES

Lillian B. Storms, Ph. D.
Gerber Products Co.,
Fremont, Michigan
Div. Fremont Canning Co.

Please send me free copy of your booklet "Baby's Vegetables and Some Notes on Mealtime Psychology."

*Name*_____

*Address*_____ H-3

THIRTY-ONE NEW MEDALS IN LIFE-SAVING ARE AWARDED

President's medals, given for the saving of a life by the Shafer prone pressure method of resuscitation, were awarded to thirty-one men at the Greater New York Safety Conference held recently, the National Safety Council has announced. Each of the recipients had saved a life in the New York district during 1931.

Since the first medal was given in the late fall of 1928, exactly 388 awards have been made by the National Safety Council. Since the plan was started, seven women have been honored and approximately twenty-five awards have been made to school boys and Boy Scouts.

The medal is given if the successful operators of the Shafer system have not received either the Insull or the McCarter awards, given in similar cases. Nearly 1,000 medals have been awarded by the three groups during the last few years. These organizations are conducting an organized educational campaign in the hope of making the process known to every man, woman and growing boy or girl in the country.

The prone pressure method of resuscitation is effective in cases of asphyxiation, suffocation, drowning and electric shock. Many victims have been brought back to life after the doctor in attendance had pronounced them dead.

RICKETS AFFECTS PELVIS AND CHEST

The mother's greatest fear of rickets lies in the possibility of bowlegs or knock knees. Some of the less commonly known results of the lack of vitamin D include deformity of the pelvis and susceptibility to infectious diseases, particularly the respiratory diseases.

"One of the most important results of rickets," the United States Public Health Service maintains, "is the deformity of the pelvis. Severe rickets may cause serious malformation of the pelvic bones. Their growth may be arrested so that a rachitic pelvis is smaller than normal, or there may be abnormal and inequal growth resulting in deformity. Pelvic deformities may have serious consequences in connection with child bearing, and may lead to the death of the infant, so that rickets must be reckoned with as a factor in infant mortality."

While children rarely if ever die of rickets, this disease seems to render them more susceptible to infectious diseases. A rachitic child may die of pneumonia.

INSTITUTION FOR CHRONIC SICK IS REALLY NEEDED

The care of the chronic sick presents an everlasting problem which really demands a solution. Since acute illness results either in recovery or in death, it does not offer the same sort of problem. Chronic diseases may be arrested, but a complete cure is rarely possible; they are also largely obscure in origin, although some long illnesses have their beginning in such infectious diseases as tuberculosis, syphilis and several forms of rheumatism. Diseases of the kidneys, the heart and arteries, the nervous system and the lungs, and cancer are also responsible for prolonged illness.

The control of infectious diseases and the consequent increase in the life span are gradually tending to increase the number of chronic invalids.

"Destitution may be only the most obvious result of the presence of a chronic invalid in a family. His constant presence, his many needs, perhaps his querulousness and evident suffering impose a terrific strain, physical and emotional, on any one who has to live with him and take care of him. Marriage, further education, independent business enterprise—all may have to be postponed, perhaps abandoned, because of the problem of supporting or caring for the invalid. . . . Long after the invalid's release, the effects of his illness may be visible in the blighted prospects and morale of the members of his family." Dr. Ernest P. Boas explains the problem of the chronic sick and offers a solution in *Better Times*, the magazine of the Welfare Council of New York City.

The ideal solution, as Dr. Boas sees it, lies in an institution for the care of chronic invalids, separate from homes for the aged and general hospitals. The chronic sick have no place in a home for the aged, because they are not well; neither do they need the constant attention that the hospital offers them.

A CORRECTION

In the April issue of HYGEIA the following statement relative to the sixth-year molars appeared: "The mother should watch these teeth in her child and have them cared for by the dentist if decay begins." The statement should have been: "The mother should watch for the appearance of these teeth and have them examined for decay as soon as they appear."

"Well, then, why don't you try it too?"

"I like to be original—but do you know why I started using Colgate's? I'll tell you. I was talking to my dentist about toothpastes being good for this and that . . . He said, 'Jean, do you know what a toothpaste is for? A toothpaste is to clean teeth—just that and nothing more.' And he said no toothpaste can do it better than Colgate's. Since I pay my dentist for advice, I'm going to take it. Besides I like its flavor! And maybe you think the price of a quarter doesn't appeal to me nowadays."

ACCEPTED AMERICAN DENTAL ASSOCIATION

The American Dental Association, Council on Dental Therapeutics, has placed its Seal of Acceptance on Colgate's Ribbon Dental Cream.

FRESHEN UP *that* WINTER-WEARY SKIN!

Skin starved from indoor steam heat. Skin exposed to winter winds. Skin weary with the shocks of heat then chill. All this spring, use Nivea* Creme, and put back the freshness that winter took out.

Nivea is the only creme containing Eucerite*, which makes it go deep and work deep to get out the dryness of winter months. Buy a tube from your druggist . . . use it for general skin care, for night creme, for cleansing and powder base. If you want to try it first—and see how effectively it works—send this coupon for a free trial tube.

**Trade Marks Reg. U. S. Pat. Off.*

P. Beiersdorf & Company, Inc. H6
200 Hudson Street, New York, N. Y.

Please send me a trial tube of Nivea Creme without charge.

Name.....

Street.....

City.....

NEW BASIS FOR HEALTH TEACHING IS PURPOSE OF SURVEY

To procure a new basis for health teaching in the state of New York, the health behavior of approximately 3,500 children of fifty-four New York cities is being studied by the state department of education.

From each grade of the grammar schools, certain teachers studied for five weeks the health practices of a boy or a girl, selected at random, who did not know that their physical habits were under observation. Later the teachers were to visit the mothers of the two children and find out about their health habits at home. The completed studies are now being tabulated and analyzed. It is believed that the study will show whether the health habits of children on a high economic level are better than those of children less favorably situated; what part intelligence plays in helping the child set up good health habits; whether and in what respects health habits of girls are better than those of boys, and whether the nationality of the parents affects the health behavior of American public-school children, *The Survey* points out in its education department.

MAIDEN FORM'S *New*

"MATERNITY BRASSIERE"

GIVES PERFECT SUPPORT

It is **scientifically** designed to give the prospective mother exactly the **correct support** obstetricians require for their patients during the pre-natal period. **Four elastic gussets** (one placed low at each side of the front —one under each arm) together with **side lacings** allow fully for the necessary expansion. At the same time, the Maiden Form Maternity Brassiere is cleverly cut to **preserve the natural contours of the figure,** supporting the breasts perfectly and assuring a trim, neat appearance. No. 7006, of dainty flesh colored mesh, is priced $1.50. If your dealer cannot supply, write: **Maiden Form Brassiere Co., Inc., 245 Fifth Avenue, N. Y. C.**

The Maiden Form BRASSIERE
Reg. U. S. Pat. Off.
GIRDLES · GARTER BELTS

Schools and Camps

Resorts

SILVER VIEW COTTAGE, Hague-on-Lake-George, N. Y. Adirondacks. Enjoy beautiful out-of-doors. Land and water sports available. Fresh vegetables, etc. Adults only; reasonable rates. **Send for folder.**

Big Tupper **Lodge for Adults**
ON LAKE MEMPHREMAGOG
Relaxation and recreation in an informal atmosphere. 450 acres of natural playground. Main lodge and cottages with open fireplaces. Tennis, badminton, fishing and all water sports. For further information write to
MERLIN LIMITED
Georgeville **Quebec**

Schools and Camps

KOHUT A Boarding School for boys, emphasizing character building, sound scholarship, physical development. 24th year. On Post Road, 22 miles from N. Y. City. Address H. J. KUGEL, Prin., Harrison (Westchester Co.) New York.

CAMP EAGLE POINT
Established 1905
Located in the beautiful White Mts. on Stinson Lake, Rumney, N. H. All land and water sports. Riding included in tuition fee. Finest sanitary conditons. Excellent spring water. Jewish Girls. **Mr. and Mrs. A. L. Richman,** *Directors.* 72 Gardner St., Allston, Mass. Camp Stinson for Boys 2½ miles distant.

CAMP STINSON *for Boys*
In the White Mts. on Stinson Lake, Rumney, N. H. Excellent sandy beach. Finest sanitary conditions. Excellent spring water. Land and water sports. Riding included in tuition Fee. Staff of trained counselors. Jewish Boys. **Mr. and Mrs. A. L. Richman,** *Directors.* 72 Gardner Street, Allston, Mass. Camp Eagle Point for Girls 2½ miles distant.

Schools for Backward Children

Beverly Farm (INC.) ***A Home and School for Nervous and Backward Children and Adults***
220 acre farm. 7 bldgs. New school gymnasium. 35th year. Industrial and school training given. Dept. for birth injury cases. GROVES BLAKE SMITH, M.D., Supt. **Godfrey, Ill.**

<> TROWBRIDGE TRAINING SCHOOL <>
Home school for nervous, backward children. ***Best in the West.*** Beautiful buildings. Spacious grounds. Experienced teachers. Individual supervision. Resident physician. Enrolment limited. Endorsed by physicians, educators. Booklet. E. Haydn Trowbridge, M.D., 1810 Bryant Bldg., Kansas City, Mo.

Schools of Nursing

ENGLEWOOD HOSPITAL Be a Nurse. Three year course. State accredited. Beautiful nurses' home. Full maintenance and monthly salary. Four year High School course required. For further information, write to Englewood Hospital, 6001 South Green Street, Chicago, Illinois.

A Thrift Light!

A few cents a month pays the electric bill for all the current consumed by a 2-watt NEON GLOW LAMP —even if you burn it all night. Makes perfect night light. Lasts thousands of hours. In stock at your electrical dealer's. Write for folder. General Electric Vapor Lamp Co., 845 Adams St., Hoboken, N. J.

HOME-MAKING IN SCHOOLS CREATES DESIRABLE ATTITUDE

Through home-making work in the public schools today, enjoyment in the things pertaining to the home and pleasure in its intelligent operation are stressed. In New York State alone, approximately 200,000 girls in the junior and senior high schools take some class work in home-making education.

Try to visualize the work that is being done in one of these schools. The homelike atmosphere is felt as soon as one enters the room, for the furnishings are similar to those of an ideal home. The two kitchens are conveniently arranged to save steps. Not all the girls enter the kitchen to work at the same time. Some are planning well balanced diets; others study the relation of foods to health.

Sewing is done at tables in the living room. The girls are careful not to mar the furniture, and they devise schemes to keep pins and threads off the floor. The personal appearance of the girls is stressed, and emphasis is placed on the alteration and renovation of garments that otherwise would not see additional service. In studying personal grooming, the girls learn how important it is to care for skin, hair, nails and teeth.

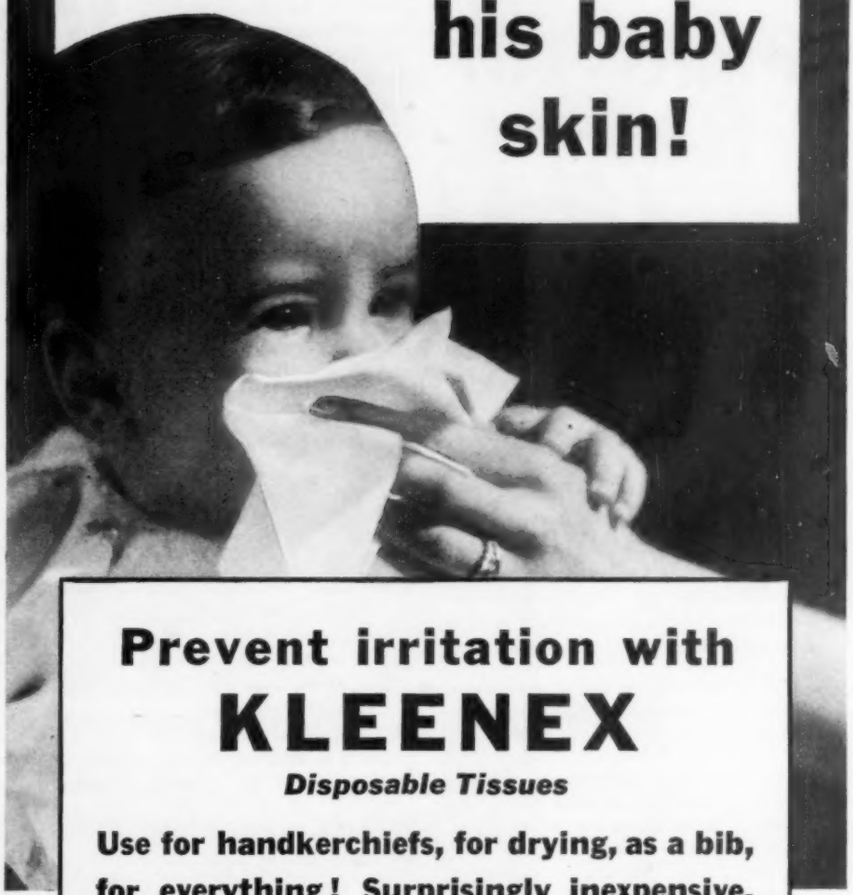
A day bed at the side of the room is used when the class studies home nursing. Real babies are cared for either at the school or in the home. Marion Van Liew tells of these delightful activities in *New York State Education.*

CHILDREN SEEKING LABOR IN DEPRESSION ARE DISILLUSIONED

It is extremely difficult for young children without specific training to find any work in times of depression, and under ordinary circumstances child labor benefits only the manufacturer or employer and does not consider the future of the child. Children who interrupt their education to go to work are fitted only for unskilled routine work. The opportunities for apprenticeship in a skilled trade are far fewer than they used to be and are rarely open to children under 16.

Many children leave school only to have the bitter experience of tramping the streets or sitting day after day in employment offices, perhaps for months—one of the disheartening and disillusioning experiences children can meet and one that often leads to delinquency, Dr. S. Parkes Cadman pointed out in a recent radio address.

MOTHER—Protect his baby skin!



Prevent irritation with KLEENEX

Disposable Tissues

Use for handkerchiefs, for drying, as a bib, for everything! Surprisingly inexpensive.

MOTHERS call Kleenex "the friendly tissue" because it's so handy and practical for so many, many uses. It costs very little. You use each tissue just once, then destroy. It's even softer than linen, and infinitely more absorbent.

Here are but a few of the many comments received from mothers:

"Kleenex makes the ideal handkerchief. It's so soft and absorbent that I feel sure of the safety of it on baby's tender skin."

"I dry my baby with Kleenex after her bath. Even old linen doesn't absorb moisture so effectively and thorough drying is important in any baby's comfort."

"I use a sheet of Kleenex tucked under the chin as grandfather does his napkin, when I give my baby her cod liver oil and orange juice which stain clothes so badly. Baby's dresses are spotless and mother's temper much improved now. Kleenex also cuts down laundry expense."

And these are only a few of the valuable uses for Kleenex! Use it to remove face creams and cosmetics *the safe way.* It blots all dirt and impurities from the pores. Also use Kleenex to wipe eyeglasses, for polishing shoes, for dusting. You will want a box in every room in your house. Sold at all drug, dry goods and department stores.

KLEENEX *disposable* **TISSUES**

Germ-filled handkerchiefs are a menace to society!

HY-6

KLEENEX COMPANY
Lake Michigan Building
Chicago, Ill.

Please send sample packet of Kleenex.

Name .....

Street .....

City ..... *State* .....

In Canada, address: 330 Bay St., Toronto, Ontario

THE HIGH FOOD VALUE and easy digestibility of the banana have been recognized by the Committee on Foods of the American Medical Association, and the Association's acceptance seal granted for use in advertising.

The following statements, used as a basis of claims in promotion of bananas, have been accepted:

"Ripe bananas (or bananas cooked when partially ripe) are readily digestible even by infants, and are valuable for modifying infant milk formulas because of the unique combination of readily assimilable sugars and vitamin C; and are an aid against constipation.

"The vitamin and high carbohydrate content makes the banana a valuable supplement to milk, the mixture being a well-balanced food. The carbohydrate contributes materially to the food energy value of mixtures of leafy vegetables and fruits. The final products of metabolism of the banana in the body are alkaline." *Journal of the American Medical Association, December 19, 1931.*

Our latest booklet, "BANANAS, A FOOD CHILDREN NEED," contains practical diet helps and suggestions for children's meals. May we send a copy, gratis?

H. 6-32

UNITED FRUIT COMPANY
Educational Dept., 1 Federal St., Boston, Mass.

Please send copy of free illustrated booklet, "Bananas, A Food Children Need."

Name.....

Address.....

City..... *State*.....

PLAY PROVIDES ACTIVITY FOR LEISURE HOURS

The problem of leisure in modern society involves many factors, the physiologic and the psychologic nature of man being among the most important. When the child or the man is deprived of play, he suffers from lopsided development of the intellectual faculties at the expense of his other faculties. Man is not only an intellectual being, Maria Lambin Rogers maintains in *Recreation* magazine; he has four equally important functions—feeling, sensation, thought and imagination, all of which must be developed if he is to have physical and mental health.

In her article, "The Development of Personality Through Leisure," the author adds further that civilization today does not provide for such all-round development. It naturally follows that in his leisure time, man must pursue activities that will lead him from the solely intellectual aspects of every-day life—activities that will give him an opportunity to exercise his repressed functions.

The spirit of play must begin in childhood, so that as an adult, man may derive the maximum satisfaction from his recreational life.

Commercial amusements and entertainment dominate the field of spare time activities and allow little time for recreation. Workers in recreation are constantly striving toward fulness of life in America.

IN ITS USES AND FOOD VALUE, THE TOMATO RANKS HIGH

The love apple, as the tomato was once called, can be prepared in numerous ways in order that one may obtain the vitamin C content so potent in that fruit. The tomato is also a source of vitamins A and B, though in less abundance.

Boiled or fried tomatoes, tomato soup and tomato flavor for vegetable or chicken creole soup, gravy for Swiss steak and meat loaf, catsup, chili sauce, macaroni with tomatoes, tomato omelet, scalloped and stuffed tomatoes, sliced tomatoes, jellied tomato salad and tomato juice for cocktails are but a few of the delicious preparations of this valuable food, the United States Department of Agriculture points out. We have nothing to match the tomato in flavor, in color or in variety of possibilities for the table; and in food value it is more than important.

Gold that buys health can never be ill spent.—*John Webster.*

Mother, keep your baby safe
from germs of infection

Vanta *Sterilized*
GARMENTS FOR BABIES

FOR your sake, Mother, and Baby's, clothe the wee body in garments HOSPITAL-SAFE, free from germs of infection which may enter the slightest of skin abrasions, even those caused by chafing. How relentlessly doctors, nurses, hospitals fight these dreaded germs! Heat kills germs. So each Vanta Sterilized Garment comes to you, vacuum-steam treated for 30 minutes in 250° of heat. Use it without washing.

How wonderful to KNOW that when you open the dainty package, the soft, Vanta Garment is safe to put right on the little body without the lurking dread that it may bear germs of disease. Each Vanta Garment is SAFE for Your Precious! What a weight of fear this lifts from your heart!

And yet these Vanta Sterilized Garments, HOSPITAL-SAFE from germs, cost no more. Vanta safety of heat sterilization costs you nothing. Ask your store for Vanta Sterilized Shirts, Vests, Binders, Knities, Diapers, Sheets, Pillow Cases.

Then Use Vanta SELF ♥ HELP Garments
Sizes 2 to 12 Years

VANTA-LACO Sterilized Powder, Sterilized Olive Oil and Pure Imported Olive Oil Castile Soap are best for babies—all of highest Vanta Quality. Insist upon having Vanta—recognize it by the Vanta Baby. If you can't get it, send name of store to EARNSHAW KNITTING CO., Dept. 1004, Newton, Mass.

FREE TO YOU

A copy of Vanta's book, "BABY'S OUTFIT," on care and dressing of Babies; revised edition. A full 64 pages of most helpful information, beautifully illustrated.

Earnshaw Sales Co., Inc.
Dept. 1006, Newton, Mass.

Without charge, now or later, send your book "Baby's Outfit," on care and dressing of babies, and illustrated catalog—all in plain envelope.

Name.....

Address.....

City..... State.....

keep Regular FOR HEALTH!

MORE AND MORE, people are appreciating that irregular habits caused by lack of bulk in the diet are a serious handicap. Irregularity can undermine vitality, make one feel sluggish and under par—oftentimes before you realize what's happening.

To keep fit, keep regular—with Post's Bran Flakes. These tasty golden-crisp flakes supply the amount of bulk which most people need—furnish such helpful benefits of whole wheat as iron, phosphorus, vitamin B, and the outer coat of the grain, a natural and effective regulator.

Because irregular habits can even lead to dangerous ills, start tomorrow eating Post's Bran Flakes every morning—delicious with cream or milk. See how easy it is to form the healthful habit of regular elimination; see how much more up-and-doing you feel!

Cases of constipation, due to too little bulk in the diet, should yield to Post's Bran Flakes if eaten regularly each day. If your case is abnormal, consult a competent physician at once and follow his advice

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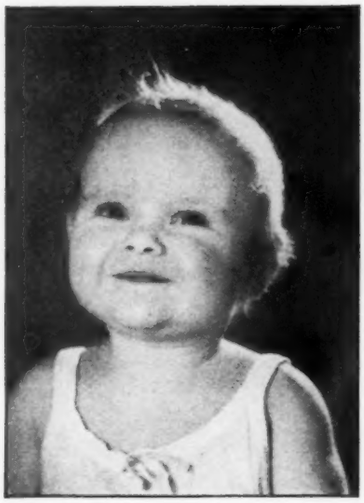
POST'S BRAN FLAKES

WITH OTHER PARTS OF WHEAT

A General Foods Product



Babies
like the taste

A LITTLE seven-month-old baby girl, whose daddy is a doctor, helped decide which brand of sieved vegetables she was to be fed as a supplement to her regular milk diet.

The doctor preferred CERTIFOODS, because he knew that their vitamin content is guaranteed. But the mother had already purchased another kind. So they decided to try them both.

First they warmed the sieved spinach mother bought. Baby didn't like it at all. Every time a spoonful was fed she spat it out. Then CERTIFOODS sieved spinach was offered. Baby ate it eagerly and wanted more. Mother decided that doctor and baby were right and now she uses CERTIFOODS regularly.*

CERTIFOODS *are* tasty. That's because they contain all the nourishing, appetizing elements of the finest, freshest raw vegetables prepared by the most scientific devices to protect their purity and goodness. An exclusive process (patent pending) preserves the A, B and C vitamins of the raw vegetables, and CERTIFOODS guarantee these vitamin values on the label of every can. No such guarantee can be found on the label of any other sieved or strained vegetable.

You can buy CERTIFOODS in enamel-lined containers for 15 cents each from your druggist. Our booklet, "What Kind Of Baby Is Yours," sent on request.

**An actual experience*

CERTIFOODS, INC.
Subsidiary of The Maltine Company
30 Vesey St., New York, N. Y.

Certifoods
Certified Sieved Vegetables

Carrots Tomatoes Vegetable Puree
Spinach Green Beans Green Peas

CERTIFOODS *are accepted by the Committee on Foods of the American Medical Association and have been approved by the Good Housekeeping Bureau of Foods, Sanitation and Health.*

JUVENILE DELIQUENCY HAS BASIS IN GANG LIFE

An important phase of juvenile delinquency is concerned with gang life in large cities. This is most prevalent among boys, beginning with early adolescence. Bad companions and misdirected efforts at self support are two important reasons for misconduct. Those arraigned are usually charged with stealing, begging, peddling without license and violating employment laws.

Girls are more frequently arrested for sex offenses than boys; however, this does not mean that girls are more prone to unruly sex conduct than boys but probably means that such conduct is regarded as more serious for girls.

Albert S. Backham of the Illinois Institute for Juvenile Research gives a detailed study of juvenile crime in the *Journal of Juvenile Research.*

Although feeblemindedness plays an important part in juvenile crime, the majority of the cases result from maladjustment. Vocational training has solved the problem of many adolescents who found history and geography dull but whose eyes brightened at the prospect of assembling a radio or building a chest.

When an adolescent has become a member of a group of undesirable boys, he should not be reproached. A complete change of locality and school will be far more effective in severing such connections.

"WELL FED APPEARANCE" OF CHILD MAY BE DECEIVING

One mother who felt the hardships of the depression said: "The children eat much less when they have several cups of coffee with lots of sugar, so it costs me less to feed them, you see." The welfare worker, who is thinking of the future of the child, sees the fallacy of this reasoning.

From the Welfare Council of New York City is sent a warning concerning the deceptive "well fed appearance of children" who, it is known, are not being supplied with the right food. Excessive amounts of bread and other starchy foods and sugar doubtless account for the seemingly well fed appearance of these children, who should be having milk, fruits and vegetables in abundance. Even the thin child who is getting wholesome food is in less danger of lasting physical harm than the boy or the girl who has a whole loaf of bread, a generous serving of meat, and several cups of coffee.

IMPORTANT to Mothers and Babies. FREE Trial Offer

For many years the Anti-Colic 3-hole nipple has been the choice of physicians, nurses and millions of mothers. Now the new Anti-Colic with Sani-Tab marks another great improvement in the hygiene of infant feeding. Much more easily applied to bottle, too. Let us send one absolutely free, for trial. Write to **Davol Rubber Company, Dept. H6, Providence, R. I.**

Special Supports for LITTLE TOTS

The tender tissues of little tots call for special supports that, while effective, must not be harsh. This one (No. 98), known as a colitis belt, is an abdominal support which relieves intestinal distension and affords a slight uplift. It is proportioned to age in size and width and regulated to degrees of tightness at the back.

Write for special information.

CAMP
Physiological Supports
S. H. CAMP AND COMPANY
Manufacturers, JACKSON, MICHIGAN
Chicago 1056 Merchandise Mart
New York 330 Fifth Avenue

Spraying is Easy for Children

If gargling is difficult for most grown people—as it is—think how much harder it is for children. And because it is difficult, it is often ineffective. When your doctor prescribes a medicated solution for application to the nose or throat, ask his opinion of spraying. A DeVilbiss Atomizer will apply the medicament, not only very gently but very thoroughly to all inflamed tissues. The medicated vapor reaches the spot without gagging or choking. You can get a DeVilbiss Atomizer at any drug store.

DeVilbiss

★ ★ ★

The DeVilbiss Company, Toledo, Ohio, headquarters for atomizers and vaporizers for professional and home use.

Accepted by the Council on Physical Therapy of the American Medical Association.

THUMB SUCKING
Quickly and Safely Stopped by Most Approved Means
SAFETY THUMB GUARDS
Send $1.75 for a pair with full directions. State Age of child. Satisfaction guaranteed or money refunded.
The Safety Thumb-Guard Co.
Dept. H, New Haven, Conn.

BASAL METABOLISM TEST NEED HOLD NO TERROR FOR PATIENT

If the doctor suggests that you have a basal metabolism test made, follow his suggestion. The great fear that accompanies the thought of this test is absolutely unfounded. It is nothing but a psychologic reaction that has its basis in ignorance of the working of the test.

The word metabolism denotes the sum total of all the chemical reactions of the body. Since oxygen is necessary to burn the fuel that enters the system in the form of food, the patient breathes pure oxygen and the amount he uses is recorded by the machine. The term is not confusing. Basal metabolism implies that the rate is determined when the body is in a resting state. That is why the doctor asks that the evening meal be light and that the patient refrain from eating breakfast and from taking liquids until the test has been made.

The layman may rightly ask what the test is capable of accomplishing. The oxygen that enters the body burns the fuel. Unless the oxygen usage is properly balanced, the burning may be too rapid and wasteful. Just as the doctor tests temperature and pulse, he can test metabolism. Just as temperature and pulse vary, metabolism varies. When the metabolism rate is elevated, it may indicate a toxic goiter. In myxedema, creti ism and some cases of obesity, in which the thyroid is underactive, the rate is lowered. Activity of the other ductless glands, fevers, anemia and other factors influence metabolism, but these are the problems of the doctor, an article in the *Pacific Coast Journal of Nursing* explains.

DESIRE TO PROTECT CHILD HARMS HIS FUTURE INDEPENDENCE

"The fundamental feature of all education is not the acquisition of information but the gradual assumption of self responsibility in accordance with capacity," Dr. H. Douglas Singer, professor of psychiatry, University of Illinois medical school, said in a recent address.

It is probably the complete dependence of the infant that makes his parents so satisfied; they derive a selfish pleasure from maintaining this dependence in a child after he leaves infancy. In the instinctive parental desire to love and protect lies probably the greatest danger to the future independence of the child. To relieve a child of the consequence of his acts is to teach him to depend on others.

The Tired Child

"The most common cause for chronic fatigue nowadays is failure to give the child enough time to rest, sleep, eat and play, meanwhile cramming him with work, school work, piano lessons, dancing lessons or what not."

It is a matter of special interest to mothers that Horlick's Malted Milk, when prepared with water according to directions, actually stimulates the appetite, as has been shown by recent experiments, and is therefore of particular value when the child is "too tired to eat" and for undernourished and delicate children.

It solves the problem in many cases of getting the child to drink milk because most boys and girls love its delicious flavor. When a glass of Horlick's is taken regularly in the mid-morning or afternoon, or at meals, it builds up the undernourished child, and gives reserve energy and added resistance against sickness.

A heaping tablespoonful added to a glass of plain milk doubles the nutritive value and makes a pleasing combination that is very easily digested. Children are fond of Horlick's sprinkled upon breakfast cereals, as it adds both to the flavor and digestibility.

Horlick's Malted Milk *The Original*

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This coupon is good for one sample of either Horlick's Malted Milk (natural flavor) or Horlick's Chocolate Malted Milk and One Weight Chart for recording your child's growth.

Check sample wanted ☐ Natural ☐ Chocolate

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